

A CIO's Guide to a Better Year

DECEMBER 15, 2001 / JANUARY 1, 2002 • \$9.00



The Magazine for Information Executives



Etiquette Expert Letitia Baldrige, PolyOne CIO Ken Smith,
Former Dell CIO Jerry Gregoire, Goodyear CIO Eric Berg

New Year's
Special Issue

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MAKING IT IN 2002

HOW TO

Talk to Wall Street • Recover From a Hack • Keep Up with Technology • Say No to Your CEO • Build a 1 Terabyte SAN for Under \$35,000 • Play Your CFO Like a Fiddle • Run a Microsoft-Free Shop • Take Control of Your Website • Cut Through Vendor Hype • Get In and Out of an Outsourcing Deal • Build Customer Loyalty • Kill a Project • AND MUCH MORE

As a product developer at JVC,
I was asked to create a hybrid
VCR that would revolutionize the
way people watch TV programs.
The challenge was to make it
no bigger than a standard VHS
recorder and get it to market within
a year. Did I reach my goal? You bet.

A man with dark hair, wearing a white long-sleeved shirt, stands with his arms crossed. He is looking slightly to his left with a confident expression. The background is a simple, light-colored wall.

I CAN BEAT
I HAVE A FINGER ON THE

JVC
— AND —
FUJITSU
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JVC wanted to create a VCR like none other.

One that combines the multifunctions of a hard

disk drive with the familiarity of a VCR. So TV

programs can be recorded and played back

simultaneously. Size, of course, was a factor. So

was time. That's why JVC chose Fujitsu's high-

performance, highly integrated semiconductor

solution, which provided all the necessary circuits

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expertise provided by Fujitsu, JVC successfully

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VCR that would revolutionize the
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The challenge was to make it
no bigger than a standard VHS
recorder and get it to market within
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JVC
— AND —
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A man in a light-colored, patterned suit jacket and a dark tie is shown in profile, looking upwards and to the right. The background is dark and textured, resembling a wall or a large piece of machinery. The lighting is dramatic, highlighting the man's face and suit.

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BE A SUCCESSFUL CIO

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"Lose that tiresome sense of humor," says Jerry Gregoire (left),
a former CIO who offers some tips on how CIOs should deal with
their CFOs. "And for heaven's sake, stop smiling so much."

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"Don't be remembered as the one who arrives too late or stays too late," advises Letitia Baldrige in our etiquette guide. Also, lose the corporate-logged polo shirts at dinner parties. 98

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How to Take the Pulse

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How to Go One Step Beyond

The **Printlinks** page is your one-stop list of all the URLs mentioned in this issue of CIO. www.cio.com/printlinks

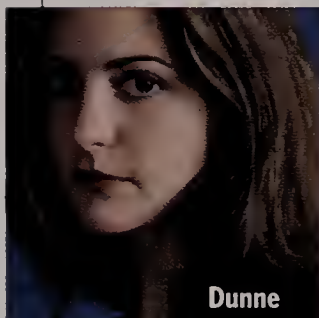
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Dunne

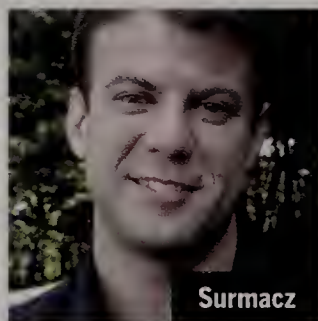
MONDAY Tech Tact: New Tools for New Jobs

Technology Editor Christopher Lindquist on what's coming and what it's good for. www.cio.com/techtact

TUESDAY CIO Radio Listen in as Web Writer Danielle Dunne talks with notable, quotable experts on critical IT issues.

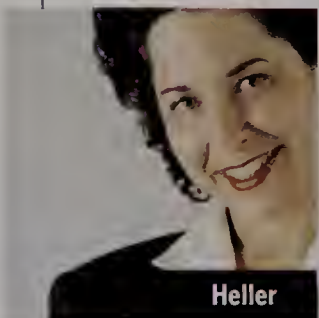
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WEDNESDAY Metrics Web Writer Jon Surmacz finds the industry numbers that matter from the country's most reputable analysts. www.cio.com/metrics



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Heller

FRIDAY The 35 Cent Consultant Questions about strategy? Staffing? Integration? Executive Editor Derek Slater gives readers advice that's worth every penny. www.cio.com/35cent

ONLINE EXCLUSIVE

An excerpt from CIO.com's new Legal Research Center

Perils of a Dotcom Wind-Down

THERE IS MORE TO WINDING UP A business than merely closing its doors. If you have the misfortune of being the CIO of a dying dotcom, you can and should address several issues in order to minimize the impact of its failure.

- Consider the Worker Adjustment and Retraining Notification Act of 1988 (also known as the WARN Act). Employers with at least 100 full-time employees are required to provide 60 days of advance notice before mass layoffs. Failure to give notice under the WARN Act may expose you to liability for back pay and retirement plan benefits, and a civil fine of \$500 for each day of noncompliance.
- High-tech employers are particularly vulnerable to age discrimination claims.
- Employees are likely to be held personally responsible for corporate credit card charges.
- Even in the face of dissolution, your duty to collect, account for and pay over withholding taxes persists.
- Principals may be personally liable for the company's real estate lease.

For the full story on how to deal with the Perils of a Dotcom Wind-Down, go to www.cio.com/legal.

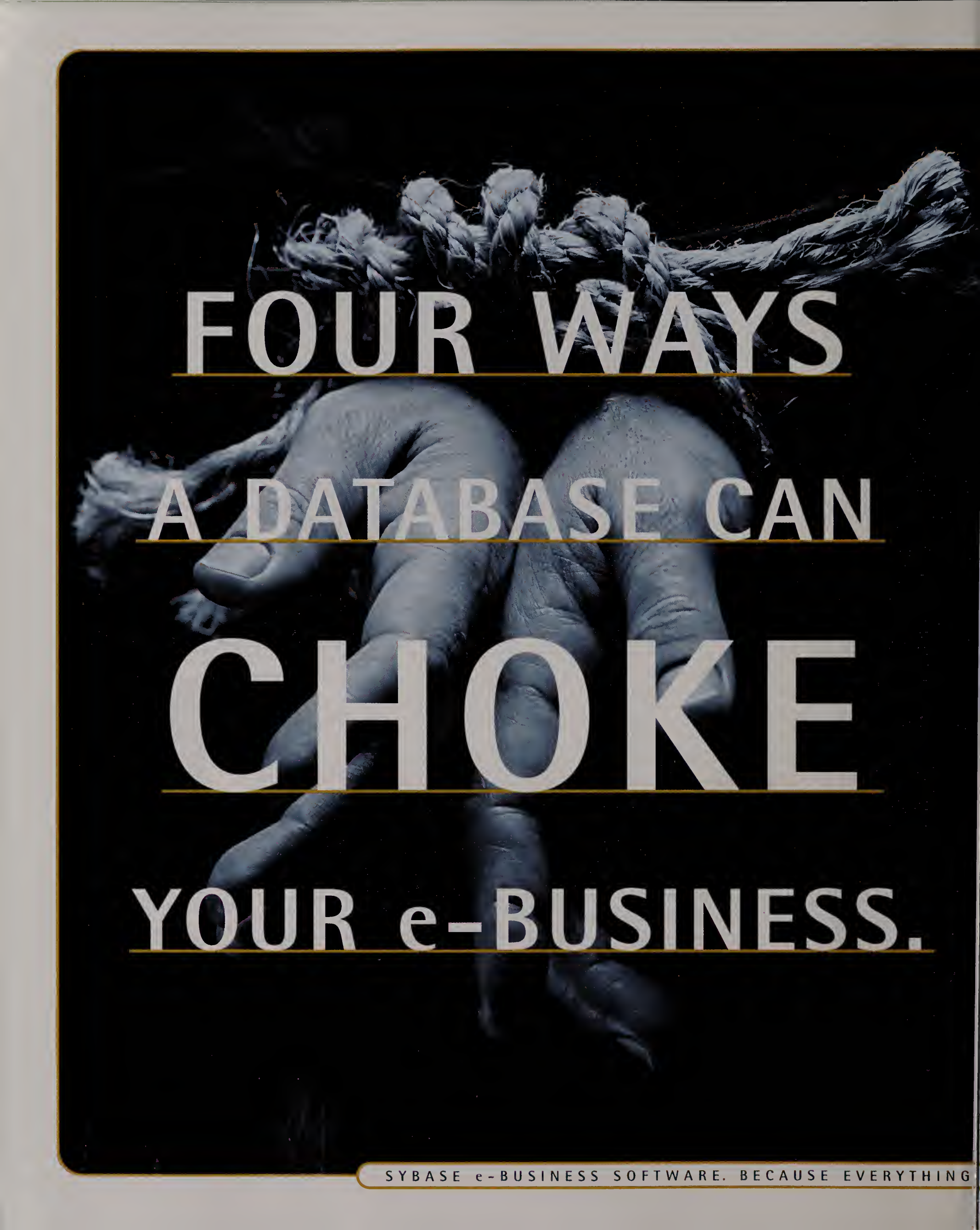


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A black and white photograph of a hand tightly gripping a thick, braided rope, illustrating the concept of choking. The background is dark, and the lighting highlights the texture of the rope and the skin of the hand.

FOUR WAYS
A DATABASE CAN
CHOKES
YOUR e-BUSINESS.

SYBASE e-BUSINESS SOFTWARE. BECAUSE EVERYTHING

DOWNTIME TIES YOU UP.

Unlike the department store, the mall or warehouse, e-Business is by its very nature 24x7. Someone, somewhere right now, is shopping for something. Whether it's a shirt or a sales report.

This poses some interesting questions for everyone managing a database.

If your e-Business is constantly online, how do you handle routine DBMS chores like maintenance?

How do you add new components and resources without disrupting your current customer transactions?

Fortunately, Sybase ASE (Adaptive Server Enterprise) 12.5 answers these questions.

ASE lets you perform routine maintenance operations and even change configuration parameters while the database is online.

You can transfer users from your primary system to your backup system without missing a beat. Even if they're in the middle of a transaction. Your employees won't even know it's happening. And neither will your customers.

In case of emergency, ASE's cluster architecture provides fail-over to a backup server without losing any non-committed data or severing a single user connection.

Bottom line: ASE delivers continuous availability to everyone who needs it whenever and wherever they need it.

INSECURITIES BRING YOU DOWN.

The sad reality is an e-Business address is like a target painted on your back. The more data collected in your database server,

the more paths of access to that server, the more tempting the target is to intruders.

ASE recognizes the challenge and responds appropriately. You'll find more security features than a Secret Service detail. Including, but not limited to: protection from wiretaps, accidental disclosure and prying from thieves and vandals.



Sybase ASE provides a row-level security mechanism that allows you to define how your database is accessed. It's a feature you'll find missing in most competitive products.

ASE also features link encryption using SSL and PKI certificates. While virtually invisible to users and developers, your users' entire interaction with the database is fully encrypted.

So your business is safe for business.

XML MEETS A DEAD-END.

This may seem too obvious to speak of, but still worth noting. Your database needs to play nicely with the many Web-driven technologies that make up today's e-Business language. Obviously this includes both Java and EJB.

But now more than ever it means XML, the emerging standard for encoding information for document interchange. If your database is not totally XML fluent, you're going to have a hard time doing B2B commerce on the Internet.

Sybase ASE makes XML rock in ways other databases simply don't. Sybase ASE has a complete XML

framework for storing, managing and retrieving XML directly to and from the database.

Data stored in the database can be retrieved as XML allowing for easy integration of your existing information with your new Web applications.

A general XML-Query facility (XQL) allows you to easily query XML data whether it's stored in the DBMS, a flat file or even a URL. Bottom line: faster development times, faster access to the information you need.

HIDDEN COSTS BITE.

In a time when everyone is searching for new efficiencies, Sybase ASE delivers real value.

It reduces costs by the very nature of its 24x7 design. It ensures that your business never goes down. It delivers fast backup and recovery. It utilizes hardware resources efficiently. But even before you get to all of that it saves you time and money in the traditionally costly development process.

If e-Business is going to be a critical part of your success this year, ASE has a critical role to play.

To find out more about how Sybase ASE can help you quickly deploy and

manage a successful e-Business, visit www.sybase.com/breathe or call 1-800-8-SYBASE. We'll make sure you get a database that won't choke your e-Business.



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From the Editor

lundberg@cio.com



For a great discussion on whether you should use PowerPoint for your next presentation, go to www.darwinmag.com/connect/opinion/column.html?ArticleID=117.

How to Prepare for a Speech

WHILE SENIOR EDITOR Alison Bass and the rest of the edit and design team were conceiving and creating this fabulous issue, I was out on the conference circuit speaking at various events. As a CIO, you too are asked to get up in front of a crowd from time to time, so I thought I'd pass along some of what I've learned. Whether it's a local gathering of fellow CIOs, a keynote speech at a CIO Perspectives conference, a panel discussion or even a presentation to the board, you'll do a better job and enjoy yourself more if you take some basic steps to prepare.

Before you say yes to a speaking request, find out the following information (if you're at a big company, your PR reps will do this for you, but make sure they ask the right questions).

Organizer and sponsors: Are they reputable?

Audience size and composition: Are they people you want to reach?

Other speakers: Will you be in good company?

Format: Does the organizer want a prepared presentation, or is it a panel discussion or Q&A?

Topic: Is this predetermined, or do they want you to come up with something—and by when?

Time slot: How much time do you need to fill?

Money: Is there a speaker's fee? Will they pay for your hotel and travel?

Support: Will you have a single point of contact for pre-event and onsite support?

Publicity: How will this be promoted?

Once you've signed on, block out time in your schedule to prepare your content and your delivery. While writing out a speech in script form may make you feel more secure, unless you have a professional speechwriter and get good training, it can lock you in, making you come across as wooden and unnatural. Draw up an outline to frame what you want to say and consider the following.

Create bullet points for the specifics, with key points and backup data.

Talk through your bullet points—fleshing them out as you go—until you're comfortable you've got your message on track.

Build in anecdotes, stories, quotes or visuals.

Rehearse in front of a mirror a few times.

Keep any great sound bites you come up with, but don't try to memorize everything you're saying. Focus on your delivery.

Are you looking at the audience?

Speaking clearly and with good intonation?

Standing straight and relaxed, with your hands at your sides?

Moving naturally around the stage and gesturing appropriately to support your points?

This is a good time to ask your spouse, a colleague or a speech coach—if you have one—to watch and listen and provide feedback.

Of course, all this takes time, so the earlier you start, the better. If you're well prepared, you'll be more effective and you may even have fun.

Allison Lundberg

PHOTO BY JASON GROW/SABA

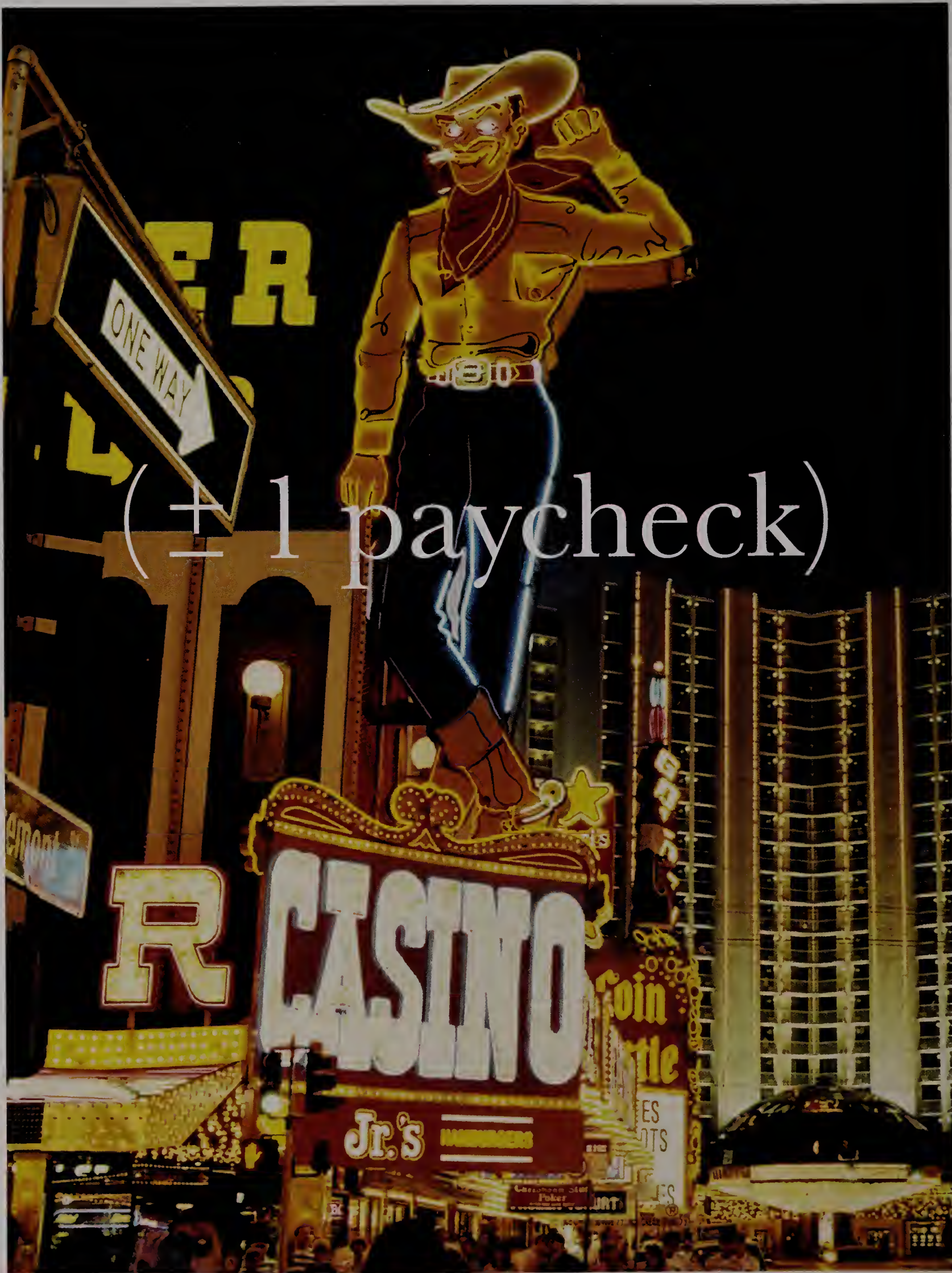
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InBox

Reader Feedback

SOME WOMEN LOVE I.T.

I am disappointed with the perspective of the article "Why IT Hates Women" [Sept. 15, 2001]. I do not share that view, nor do I feel that my career experience and personal story support that position.

Throughout my 22-year career, I have worked in engineering development, manufacturing engineering and IT. My perspective is that, like other technical fields, women are making strides—though not without challenges—into the upper ranks of the IT profession. Opportunities for women abound. With our momentum comes the opportunity to realize the competitive advantage

offered by a diverse workforce. My greatest concern is that your perspective—that IT hates women—could actually discourage talented women from pursuing a rewarding career in our profession. I am having the time of my life.

Rebecca Rhoads

Vice President and CIO

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UNDERSTAND CORPORATE DECISION MAKING

I enjoyed your article about turnaround CIOs ["How to Be a Turnaround CIO," Sept. 15, 2001]. For the past five years, I have been working with midmarket companies (\$20 million to \$500 million in revenues) as an outsourced CIO. What you found in major turnarounds at larger corporations reminds me of what I find in midmarket companies all the time. The staffs and budgets are smaller, of course, but that just adds to the problem.

Controllers, and sometimes CFOs, have been managing these departments, responsibilities are only vaguely described, and projects are subject to unexpected changes. In general, the staffs are not large enough and not nearly diverse enough. Mostly, they

have to simultaneously provide hardware and software support, in addition to training and development. Often the same person doing network support is called on to manage contractors.

It's tempting to think of these issues as smaller, simpler versions of those that the big corporations face. But it has been my experience that this is oversimplification. These companies pride themselves on being nimble—a good thing unless you are in charge of projects with long timelines. We have had to learn to move very fast when we can and to slow down the rest of the organization when we have to.

Add all that to the fact that most of these companies are entrepreneurial, which is a code word for privately held, and corporate decision-making processes are...subtle.

Thanks for the insight.

Jim McKean

Principal Consultant

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WHY CENTRALIZE NOW?

Your article on centralization was very good ["Next Stop: Centralization," Sept. 15, 2001]. It explains that centralization can be very different from

company to company, and it is not something that businesses can just attempt because it is the thing to do. Companies need to understand the way they operate and conduct business in the marketplace before deciding on a centralization model.

One thing that the article does not address is why we are talking about centralization again. I was still in school when the IT pundits decided to head for a decentralized model in the late 1970s and early 1980s (as indicated in your article), but I am confident that they all made very good business cases showing lots of savings. So what has changed?

I believe the answer to that question begins with the concept of outsourcing, which became and remains the mantra for cutting costs at most companies. Most companies went with the flow and started to outsource. At some point during this time, businesses realized it was very difficult to determine the right amount of money to be paid to outsource service providers, among other outsourcing issues.

The answer was not as simple as: We should pay lower than the current cost of doing it ourselves. That forced a lot of businesses to first attempt to take down the costs and streamline their processes within the company





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before looking to outsource. This approach drove a number of companies to establish a centralized model themselves. With so many companies attempting to centralize, it now seems like the way to go.

Shakti V. Jauhar
Director of Shared Services
PepsiCo Beverages International
Purchase, N.Y.
shakti.jauhar@pepsi.com

THE CFO-CIO CONNECTION

After reading your article "Do the Math," in the Oct. 1 issue, I found myself at a loss for the exact nature of the theory. I turned to my longtime friend and coworker at the CFO level for some direction. The reaction provided an epiphany of sorts in how I deal with the world of corporate finance.

In my last two employment opportunities, the CFO and myself have interacted in a very symbiotic relationship. I have learned as much about the world of corporate finance as he has about IT. How has that helped our careers? No longer do we need a "translator" to convert from one type of language to another. I can understand the basics of corporate finance (it shocks executives when I start talking about imputed yield on hardware leases), and he has a grasp on the technology (which scares the other executive when the CFO is discussing the ROI of a thin-client architecture).

It has made us more versatile and has doubled our ability to creatively change an organization. It would seem that the wise move would be for CTOs/CIOs and CFOs to get along in such a manner. It makes the combination extremely effective, which we have seen in our last two places of employment.

Jonathan M. Matheny
Director of IT
AlphaSoft Services
Walnut Creek, Calif.
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MARKETING: THE HARD TRUTH

Marketers advertise fantasies to imply some degree of "next generation," "leading edge," or "we know what's on the horizon" capability so that the everyday products they do sell have some sort of aura that separates them from the pack [see "A Letter to Our Suppliers," Oct. 15, 2001]. The assumption is that most high-tech products or services are so similar that you need to create the perception that the parent company is so ahead of the pack that its mundane products must have some sort of slight edge.

Bill Power
VP of Marketing Communications
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OPEN SUPPORT

As a developer, I thought your article was informative ["Let's Stop Wasting \$78 Billion a Year," Oct. 15, 2001]. It was heartening to learn that customer companies are taking the initiative to challenge the business practices of software vendors that don't deliver. However, you wrote, "When you buy software from a vendor, you can always turn to its help desk, however incompetent. With open source, you're on your own."

This is the case for some open-source projects, but others, such as Linux, have distributions that are managed by companies and offer support.

As far as support for other open-source products, a company would be wise to consider taking funds that would have gone to proprietary software purchases and instead fund in-house developers to customize and tailor the preexisting source code to the businesses needs. In this way a company can both benefit from reduced cost (extremely reduced cost) of initial code writing, and at the same time con-

tribute to the very movement that made it possible. As far as support for these products, they offer as much or more support as any custom application that a company would choose to write.

Bart Skondin
Java Developer
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Portland, Ore.
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THANK YOU, I.T.

As the aftershock of the events that took place on Sept. 11 really started to sink in, I was overwhelmed by the generosity displayed by the IT community in the Washington, D.C., area that supports the Department of Defense.

I won't list the names of the companies that contacted me and others within the DOD for fear of inadvertently leaving someone off the list, but without exception I was flooded with offers of assistance. The DOD IT vendor community wanted to donate hardware, software, servers, rehosting capabilities, technical support and operational support—anything they could do to help the DOD through the horrific events in the Pentagon.

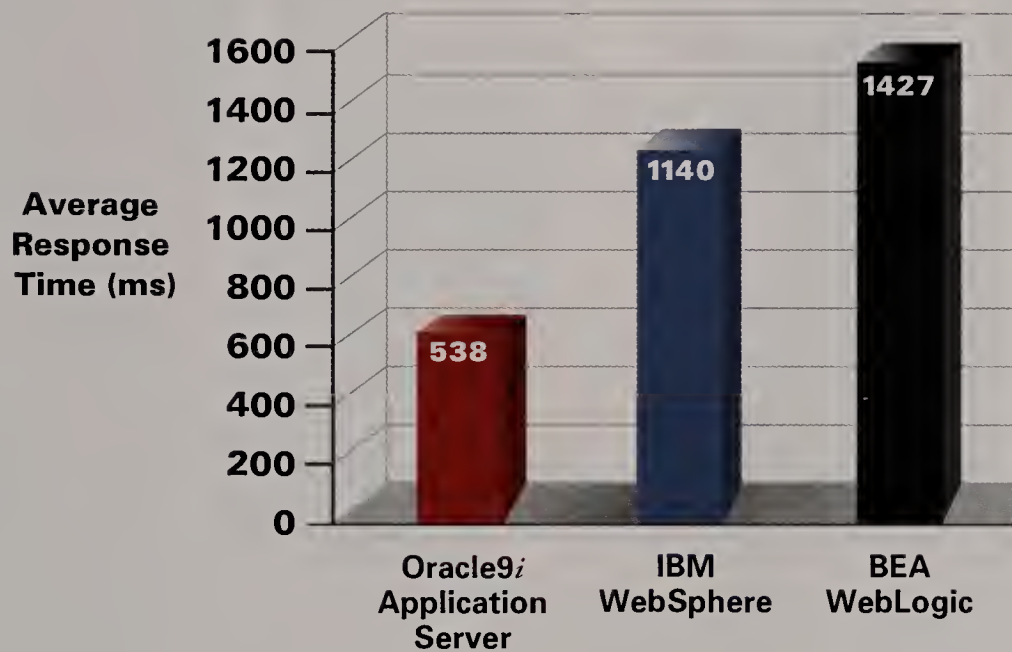
To each and every company that made those offers, on behalf of the Department of the Navy, I would like to say, thank you. Your dedication to support our mission—no matter what the cost to you—is indicative of how much you are a part of the Navy Marine Corps team.

Ron Turner
Deputy CIO
Department of the Navy
Arlington, Va.
turner.ron@hq.navy.mil

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Send your thoughts and feedback to letters@cio.com. Letters may be edited for length or clarity.

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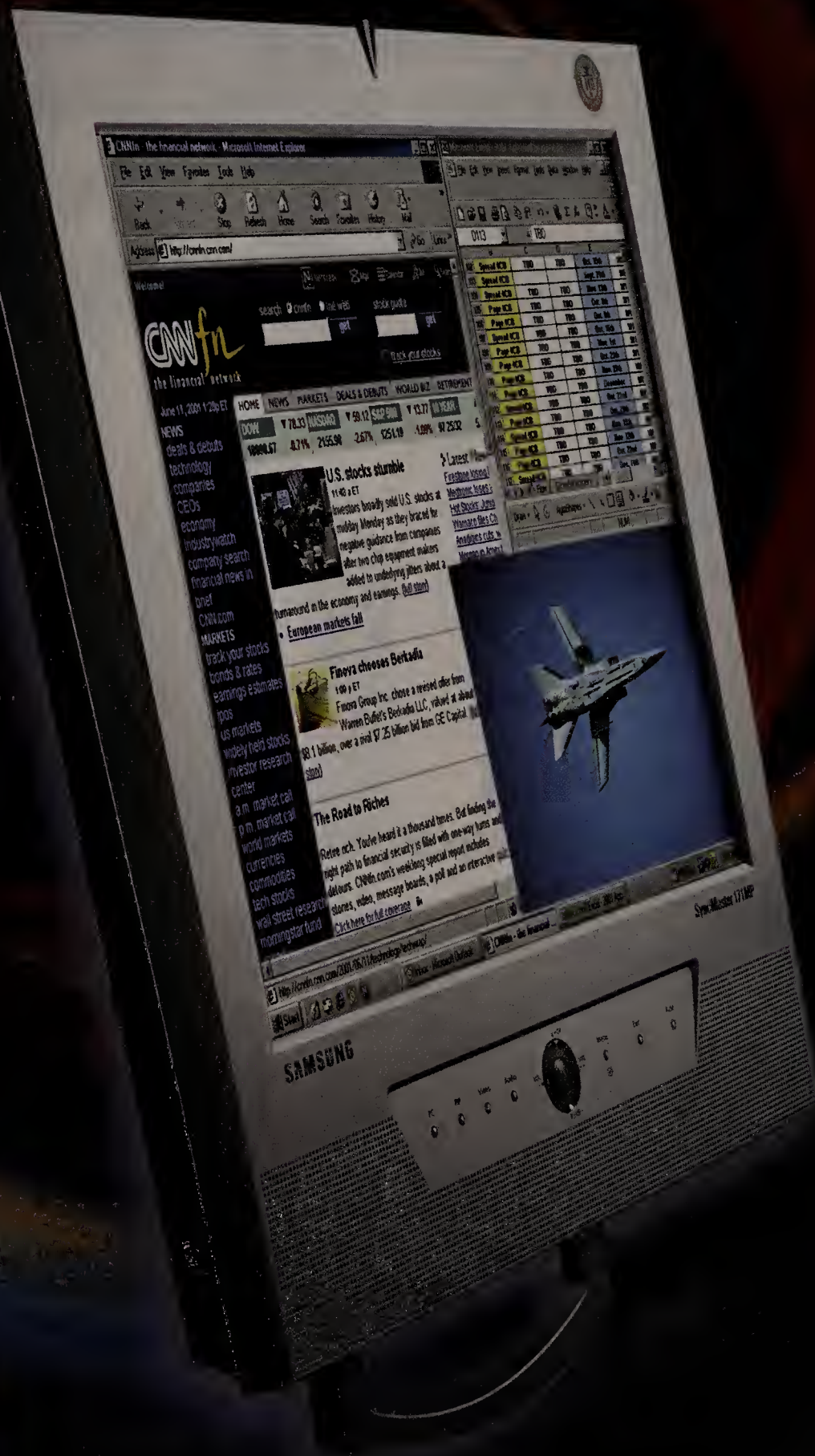
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Edited by Sandy Kendall

R I S K M A N A G E M E N T

A Third Nuclear Age?

By Scott Berinato

NUCLEAR ADVOCATES invoke the capabilities of information technology as grounds for reviving old stations and building a new fleet of plants to provide for our boundless energy demands. (Ironically, those demands come partly from proliferating IT and power-hungry data centers.)

IT has transformed nearly every aspect of the nuclear reactor, from the virtual design of plants to command and control of reactor functions. Redundant systems, self-diagnostics and predictive maintenance make the plants safer. These are not off-the-shelf systems but highly specialized, proprietary and completely hardened software systems developed by nuclear engineers.

"The technology has improved so much," says Steven Arndt, team leader for instrumentation control and digital system safety within the office of research of the Nuclear Regulatory Commission in Rockville, Md. "IT has the potential to make the benefits of new nuclear plants outweigh the disadvantages." For example, software has revolutionized feed-water controls, which monitor and maintain the

levels of cool water injected into the steam generators, preventing them from overheating. The design of fuel cells and thermal hydraulic mechanisms, which control the nuclear reaction, are also vastly improved through computer-aided design and high-computation simulations. Perhaps the most important IT concept used in nuclear plants is redundancy. Some systems have multiple backups running the same processes.

Shirley Ann Jackson, former chair of the Nuclear Regulatory Commission and now president of Rensselaer Polytechnic Institute, believes the dramatic technology improvements can usher in a third nuclear era. She describes the first era as the halcyon 1950s and '60s, when nuclear power's candy-coated image was represented by Disney's 1956 animated film *Our Friend the Atom*. The second era started with the 1979 Three-Mile Island meltdown and was cemented by the 1986 Chernobyl explo-

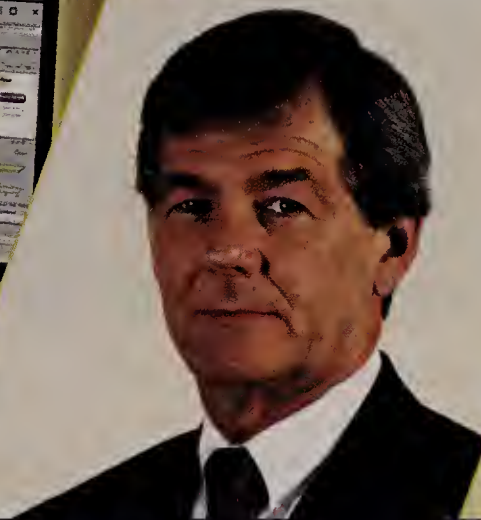
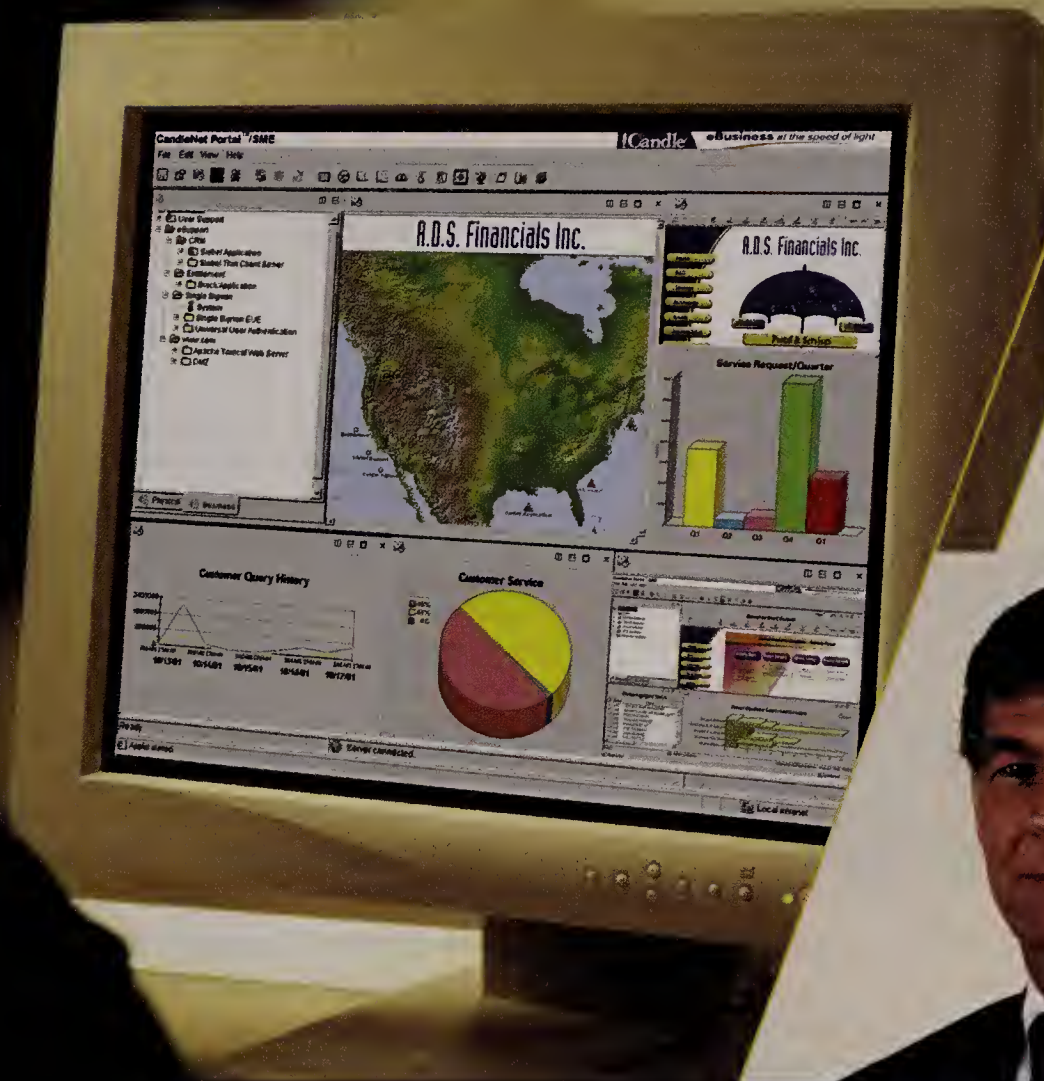
sion. Public trust never returned, and as plants closed, they were not replaced.

While IT can streamline a nuclear power plant, David Lochbaum of the Union of Concerned Scientists (UCS) warns that technology doesn't remove risks—and there's still that pesky problem of disposing of radioactive waste. "IT doesn't make nuclear power inherently safe," says Lochbaum, who notes the UCS is neither anti- nor pronuke. "The technology gives you faster insights, but in a sense, it's just making it easier to get to the risk."



"DISASTER RECOVERY WAS ALWAYS SOMETHING WE WERE GOING TO DO. NOW IT'S SOMETHING WE HAVE TO DO."

—Dennis Benner, EVP of corporate development, Autobytel



Royce Green
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HOT TOPIC

CUSTOMER
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The Boss Is Listening

By Cheryl Asselin

JOE, a call center supervisor, sits at his computer to analyze his team's productivity from the previous day. His records show that Bob had several customer contacts that resulted in arguments. Wouldn't it be great if Joe could zero in on the heated moments of those conversations to learn what went wrong?

A new trend in CRM software could make that possible. Replay Studio from Eyretel, a CRM solutions developer based in Calverton, Md., is one such product that records all of a call center's calls (as opposed to random monitoring and recording) for later review and analysis. The software also provides visual graphs of voice recordings. In the example above, color-coded voice graphs let Joe see the exact point in the conversation when Bob and the customer were talking at once—typically indicating an argument. Joe can then click on the area prior to the argument and hear how it started.

Louisville, Ky.-based HCA Inc. NPAS, which provides

billing, customer service and accounts receivable management for HCA's hospitals worldwide, has been using Eyretel's Replay Studio for several months. HCA's CEO Curtis Warfield says that the 100 percent recording and graphic depiction of conversations has improved his company's interactions by enabling supervisors to pinpoint the company's deficiencies and take appropriate action, such as employee retraining or recontacting disgruntled customers.

Warfield adds that prior to installing Eyretel's products, HCA had "subpar customer service; we had bad relationships with hospitals and patients." The company has improved its image within the company as well as with its patients since it began using the call recording system. "People love it," he says. AT&T Long Distance and Equiserv are also implementing the Eyretel product.

Other vendors, such as Nice Systems and Comverse Infosys, offer similar products. The goal for this CRM niche is to record and graph conversations in real-time, so supervisor interventions can occur in real-time as well. Bob, our hypothetical customer service person, may not appreciate that feature, but you can bet the customer on the other end of the phone would.

Maynard BY DARRIN BELL AND THERON HEIR



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Step Three: Closing Infrastructure Gaps

SUPPORT YOUR CRM INITIATIVE

The first two steps in the seven-step CRM infrastructure development process discussed defining ROI goals and identifying customers. Step 1 outlined the construction of a solid business case accompanied by an ROI model that quantifies the costs and anticipated benefits associated with the CRM initiative. This step must take into account financial benefits, such as increased revenues and lowered costs, as well as the cost of infrastructure investments and variable marketing expenditures.

Step 2 reviewed the process of identifying prospects and customers—their demographics, preferences, the products and services they buy, and the channel(s) through which they make their purchases. Knowing who your customers are and how you plan to align the business to meet their needs will drive the next steps.

Step 3 is the development of the technical architecture to support your business goals. This is a critical step, for without an extensible IT infrastructure, a CRM initiative will be unable to deliver on its intended vision and goals, and will, in fact, yield higher long-term cost of ownership through workarounds and a continuous string of quick fixes. The reality of most CRM initiatives is that the business goals will change over time, sometimes within a quarter, and the IT infrastructure must be flexible enough to support those changes without extensive modification.

CRM Infrastructure Defined

So, what is a CRM infrastructure? While the impact of CRM initiatives on IT infrastructures varies widely from company to company, there are three fundamental elements to deploying successful CRM infrastructures:

- a customer-centric data and computing architecture that provides and manages customer information across the enterprise;
- business rules that coordinate customer communication and interaction across touch point systems; and
- the systems and processes that facilitate the integration of both legacy and also analytic and operational CRM systems.

A well-designed CRM infrastructure will enable you to:

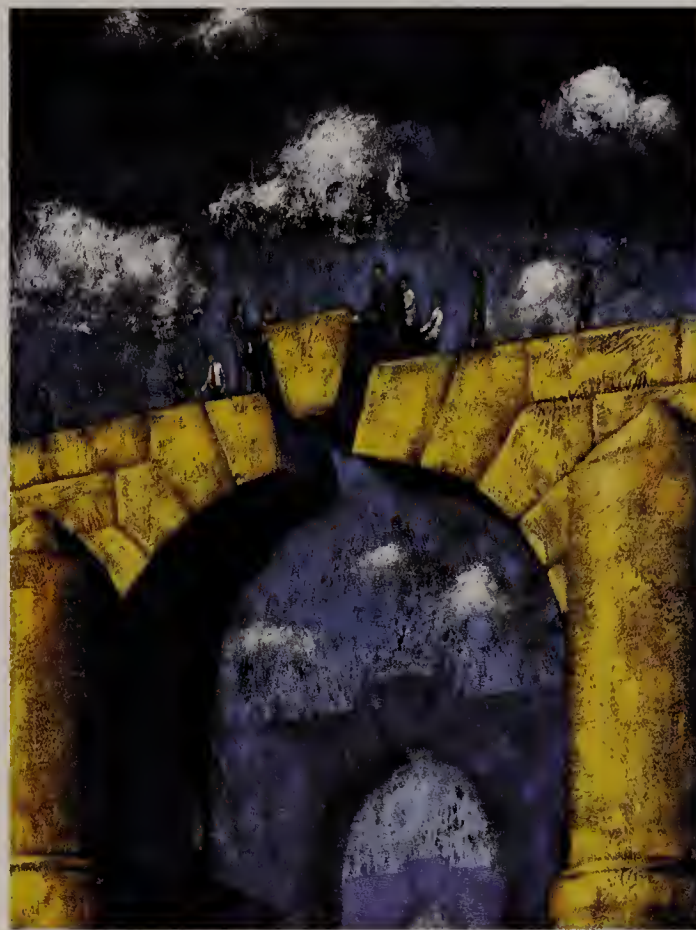
- integrate and coordinate multiple customer touch points (e-mail, call center, direct sales, POS, direct mail, etc.)
- extend the definition of a customer or program without negatively impacting application design;
- add new system components and applications without redesign;
- define new business processes and data;

- add new data sources without compromising performance; and
- support simultaneous users and add new business units.

Benefits of a well-constructed CRM infrastructure include: reduced deployment capital and expense costs; reduced ongoing management costs; additional revenue-generating opportunities; and customizable systems that leverage your existing CRM technology investments.

Defining Functional Requirements

The first phase of Step 3 is to define the high-level functional requirements that will drive the technical specifications of the CRM system architecture. Functional requirements describe the



Closing Infrastructure Gaps

Seven Steps to Successful CRM Infrastructure

A Guide for CIOs

This is the third in a series of articles presented by the Wheelhouse Corporation that describes seven key steps to implementing the technical infrastructure supporting customer relationship management (CRM) initiatives.

These articles are based on Wheelhouse's extensive experience as a CRM infrastructure provider helping Fortune 1000 companies deploy, manage and optimize marketing-driven CRM systems. Wheelhouse customers include such well-known companies as Cablevision Systems Corporation, J.P. Morgan Chase, Merrill Lynch, Trendwest Resorts, Inc., VoiceStream Wireless and Wells Fargo.



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business processes and the systems that support those processes to execute on your business goals. For example, how data will flow from operational systems to the analytic systems to enable customer segmentation, what new processes need to be developed to support additional touch points to improve customer satisfaction, etc.

Many times, supporting multi-channel marketing efforts is overlooked, but can be crucial to the success of integrated campaigns. For example, a publishing company with multiple magazine titles may want to cross-sell subscribers across titles, but this requires a link between the analytic and operational CRM systems. The analytic system houses the customer analysis and business rules associated with the campaign, while the operational system handles the business process and customer information associated with a service call, such as a change of address request or subscription renewal.

Assessing Current State

After defining the functional requirements, assessing the state of your current infrastructure will allow you to identify those existing systems and processes that can be leveraged to support the initiatives identified in Steps 1 and 2. Barry Briggs, Wheelhouse's CTO explains, "At a high level, IT examines the state of the company's operational CRM systems—its websites, call centers and communications tools such as broadcast e-mail and list management—as well as the enterprise's analytic CRM systems, which include the customer-centric data mart, campaign management software, and various analysis and reporting tools."

Additionally, legacy systems and the data management infrastructure must be considered in the initial state assessment.

Formulating the Desired State

In parallel with assessing the current state, the IT organization must translate the functional requirements into a desired infrastructure that supports the three fundamental elements of CRM infrastructure: *customer-centric data and computing architecture, common business rules, and integration of CRM and legacy systems.*

Developing a *customer-centric data and computing architecture* requires tak-

ing the business definitions described in Step 2 and defining the sources, processes and databases necessary to support those definitions. A CIO may be required to support: external and internal data sources; sophisticated data validation, cleansing and ETL processes; different legacy databases and CRM application datamarts; and business user access and modification to the data at any stage in the processing lifecycle.

Business rules that coordinate customer communication and interaction across touch point systems enable the organization to manage the customer lifecycle and to take advantage of cross-sell and up-sell opportunities. The CIO must decide where business rules for handling customer interaction will live. Most operational CRM systems, like a website or call center, house business rules appropriate for handling customer interactions *within that channel*. The challenge is to develop an infrastructure that will translate business rules across channels.

For instance, a company that has an opt-out privacy policy for e-mail that works on the Web must be able to operationalize this policy through other channels like the call center if they are collecting e-mail information during service calls. This is just one example of a business rule that grew out of one channel but needs to be translated to others as the scope of the customer relationship expands.

The final element is the *integration* between legacy, operational and analytic CRM systems. The integration architecture must support extensible systems and processes so new CRM capabilities can be added as business needs change, *without* retooling the touch point applications.

Conducting a Gap Analysis

Once the current state has been documented and the desired state defined, a gap analysis can be conducted. This analysis is important to bring to light which previous investments can be leveraged and what new investments are required. In some cases, CIOs are confronted with a decision to purchase one CRM suite over another to fill the gaps. What is often disregarded is the dynamic nature of the business requirements for marketing, sales and service system functionality. Without a flexible, extensible infrastructure to support the changes that

are bound to be required, the CIO will forever be faced with expensive modifications to a brittle environment.

Succeeding with an Integrated CRM Infrastructure

Wheelhouse recently worked with a large financial services organization that wanted to cross sell investment products on its website. Their main impediment was that the data needed to initiate the cross sell (e.g. customer preference information) was scattered across the organization in individual product groups. So, while valuable customer information was being collected at the organizational level, this data was worthless at the touch point.

In order to capitalize on cross sell opportunities through the website, Wheelhouse designed an infrastructure that enabled the organization to leverage this valuable customer data collected from the different business units and touch points. This integrated data architecture included not only data repositories but also data movement (key structures, latency, meta-data, ETL, data quality, etc.), and enabled the organization to draw upon data throughout the organization to generate the best offer for the Web visitor based on all available, relevant information. The major benefit of the solution, however, was that it could also be applied to other channels, like the call center.

With the proper CRM infrastructure in place, this organization was prepared to meet its ROI objectives, to provide their clients with a level of personalization that exceeded expectations, and to generate top line growth for the company.

Coming up in the January 15 edition of *CIO*:

Step 4: Developing a Customer Interaction Policy

To download an electronic version of this article, go to www.wheelhouse.com/articles.

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The Magazine
For Information
Executives

Washington Watch

Edited by Elana Varon

Privacy Versus the FBI

CIOs HAVE A GOOD REASON to rethink their company's privacy policy. The antiterrorism law **President Bush** signed in late October makes it easier for officials investigating potential terrorist activity to get court orders to search companies' business



President Bush

records. Having the right privacy policy in place can save executives from bad PR or lawsuits by customers or business partners whose data they may have to turn over if the feds come knocking.

Michael Arruda, chair of the Privacy and Security Practice Group of McCutchen, Doyle, Brown & Enersen in San Francisco, says many privacy policies promise customers that the company won't share their data without their permission. Under the new law, however, the feds can actually prohibit companies from telling people when they share data with law enforcement.

In the past, companies didn't have to worry about compromising privacy when they cooperated with investigators because the feds could get court orders to seize only specific data they could prove would implicate a suspect. Now investigators can go fishing and subpoena data they merely think might help their case. For instance, if they believe a suspected terrorist is using his employer's e-mail system to plot attacks, they can get his entire address book, not just the addresses of suspected coconspirators. From there, it's easy for them to get a warrant to read any of the suspect's e-mail.

Companies can protect themselves with a privacy policy that clearly states any information could be turned over to the

government during a criminal investigation, Arruda says. He says such a clause gives customers and business partners fair warning that their data isn't completely confidential.

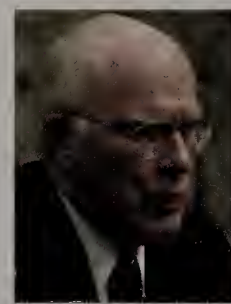
Other privacy experts see this differently. **Cindy Cohn**, legal director for the Electronic Frontier Foundation, a San Francisco-based civil liberties group, argues that using a privacy policy as a shield against lawsuits when cooperating with the government violates the intent of having the policy in the first place. A privacy policy that says executives will turn anything over to the government becomes "an explanation of how and when they're going to violate your privacy," she says, rather than a statement of how they'll protect it.

The public wants law enforcement to have information valuable to a terrorism investigation, Cohn says, but people "aren't ready to embrace a world where the government can look at everything they do." With consumer confidence falling and dotcoms failing, Cohn thinks making a statement saying the company can no longer protect a customer's data will create a backlash against doing business online.

According to Cohn, any executive presented with a subpoena should think carefully about what information he hands over. Most court orders are negotiable, she says, and company lawyers can ask investigators to scale back their requests if certain corporate information doesn't seem relevant to the investigation. Arruda agrees that's an option, but he says executives still risk being sued by a disgruntled customer or partner if they give up too much.

Privacy concerns are taking a backseat to national security in Congress these days, so it's less likely now than before Sept. 11

that lawmakers are going to take any steps toward defining privacy protections for individuals. Civil libertarians such as **Sen. Patrick Leahy** (D-Vt.) see the anti-terrorism bill—which also gives law enforcement officials expanded powers to monitor suspects' e-mail and share the information they gather with intelligence



Sen. Patrick Leahy

agencies—as good fodder for creating privacy protections through court cases. Meanwhile, Leahy, who is chairman of the Senate Judiciary Committee, says he wants the panel to monitor the extent to which the privacy of

innocent people is compromised by the law.

CIOs are now in the unusual position of having to balance national security interests with the needs of their companies. A privacy policy that takes both needs into account is a good place to start.

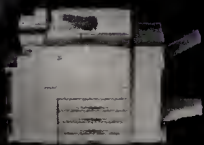
—Stephanie Viscasillas

"Government is a notoriously bad investor when it comes to predicting technology winners and losers. We should be careful not to embrace too quickly any one broadband technology or service."

—FCC Chairman
Michael Powell

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R E T R O S P E C T I V E

First, There Was Pong

By Eric Berkman

MADDEN NFL 2002 has graphics so realistic you think you're watching a Sunday afternoon telecast, and state-of-the-art games like *Majestic* and *Tony Hawk's Pro Skater 3* keep even the most stimulus-hungry teenager occupied for hours. But back in the early days of video games, all anyone needed for video bliss was the staccato ping of a computerized blip bouncing between two graphically crude paddles.

Pong is as iconic of the mid-'70s as the steel curtain defense of the Pittsburgh Steelers and "Whip Inflation Now" buttons. But the game's heritage stretches back to the 1950s and a scientist at the Brookhaven National Laboratory in Upton, N.Y. There, in 1958, Willy Higinbotham built the first game to use a computer and cathode-ray tube. It was a tennis game, with an inverted T for a net and a bouncing point as a ball. Higinbotham never tried to commercialize the system, and no one claimed to be the inventor of the video game until 1968, when

electronics engineer Ralph Baer devised his own tennislike game and applied for the first video game patent. This game hit the market in 1972 as the Magnavox *Odyssey*—the first commercially available home video game system.

Pong was introduced the same year by an obscure new company, Atari. Its creator, Nolan Bushnell, introduced the system as a coin-operated arcade game and placed the first machine at Andy Capp's, a bar in Sunnyvale, Calif. A day later people were lined up outside at 10 a.m. to get the chance to play. Magnavox learned of its nearly identical new cousin, and ultimately forced Atari to pay for the right to keep manufacturing the game. The payoff proved worth it. *Pong* and offspring like *Breakout* and *Video Pinball* spawned the Atari video



game empire of the early 1980s. Although the *Asteroids*/*Space Invaders* revolution would leave *Pong* in the dust, some folks still yearn for those days when the primitive game could keep you absorbed seemingly until the end of time. Are you one of them? A vintage 1975 Atari *Pong* home system will run you about \$50 on eBay—not a bad price for youth recaptured.

I. T. I N T H E A F T E R M A T H

Attacks Barely Affect Data Center Spending

THE DATA CENTER INSTITUTE, a think tank of AFCOM, a leading association for data center professionals in Orange, Calif., conducted a survey of 422 senior data center managers (including 5.1 percent CIOs, CTOs and presidents) both before and after Sept. 11. Respondents are from the country's largest data centers and represent a cross section of industries. The survey initially polled respondents about budget trends, e-commerce adoption and future trends in the industry, and then followed up to see whether responses had changed because of terrorism.

53.1% of respondents said that despite the economy, they will spend the same or more on IT in the next year.

94.4% said that the terrorist attacks have not caused them to cut spending.

21% said they have been forced to reprioritize upcoming projects as a result of the attacks.

25% said their organization instituted "no air travel" policies as of Sept. 11, but those were expected to last less than two months.

Only **53%** had reviewed their disaster recovery and backup plans since Sept. 11.

The entire survey can be viewed at www.afcom.com/surveyresults.html.

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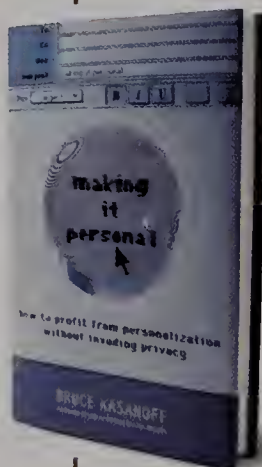
BUSINESS CONTENT MANAGEMENT

Off the Shelf

Edited by Carol Zarrow

How to Get Personal

Making It Personal: How to Profit from Personalization Without Invading Privacy
By Bruce Kasanoff
Perseus Publishing, 2001, \$26



Bob was thrilled when his favorite online bookseller recommended a new auto-racing book based on his past purchases. He was not nearly as thrilled when his auto insurance provider used the same book-buying data to label him a potentially reckless driver and raise his rates by 10 percent.

In *Making It Personal*, technology and customer marketing consultant Kasanoff examines the promises and pitfalls of personalization. Hopes that personalization will lead to increased profits might lure your company into using customer data, but what do you offer people in return for invading their privacy?

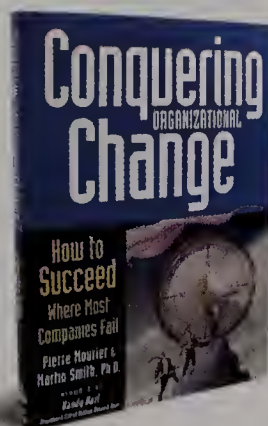
Kasanoff shows he has a knack for making abstract discussions relevant to actual business practices by generously sprinkling anecdotes throughout the book. A "thought exercise" at the end of each chapter invites readers to clarify its concepts by connecting the material to their own experiences. Except for a portion of the final chapter, however, don't expect a lengthy treatment of

actual privacy law. This book is a good starting point, but by no means a detailed or technical privacy discussion. —Tara Liloia

How to Change

Conquering Organizational Change: How to Succeed Where Most Companies Fail
By Pierre Mourier & Martin Smith
CEP Press, 2001, \$18.95

"You won't find any lofty theories about change in this book, just commonsense recommendations" about how to effect organizational change, write Mourier and Smith, both management consultants. A how-to guide to change in companies, this book includes planning guides, checklists and tactics. The most valuable thing about this slim book, however, is its approach to the concept of change. Rather than viewing change management as the province of executives and management consultants, the authors define change broadly as the stuff that happens in many companies much of the time: business growth or contraction, new technology and new computer system



implementation, process changes, mergers and acquisitions, and so on. As such, organizational change involves most everyone in the business world. And most everyone could benefit from this book's step-by-step guide to achieving change.

—Edward Prewitt

CIO Best-Seller List

5.

The 21 Irrefutable Laws of Leadership
by John C. Maxwell
Thomas Nelson, 1998

4.

Now, Discover Your Strengths: The Revolutionary Program That Shows You How to Develop Your Unique Talents and Strengths—And Those of the People You Manage
by Marcus Buckingham and Donald O. Clifton
The Free Press, 2001

3.

Fish! A Remarkable Way to Boost Morale and Improve Results
by Stephen C. Lundin, Harry Paul and John Christensen
Hyperion, 2000

2.

First, Break All the Rules: What the World's Greatest Managers Do Differently
by Marcus Buckingham and Curt Coffman
Simon & Schuster, 1999

1.

Who Moved My Cheese? An Amazing Way to Deal with Change in Your Work and in Your Life
by Spencer Johnson
The Putnam Publishing Group, 1998

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Book Talk

"If you want to be a leading provider then you've got to be with leading users, and those are not usually the regular firms. They're people operating at the fringe. They're not on most radars because they're smaller groups. They're experimenting, and they're looking for people who can come up with solutions to their problems."

—From a CIO Radio (www.cio.com/radio) interview with Stephen C. Harper, author of *The Forward-Focused Organization: Visionary Thinking and Breakthrough Leadership to Create Your Company's Future* (Amacom, 2001)

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INTERVIEW: MICHAEL HAMMER

Process Must Focus On Customer

By Carol Hildebrand

REENGINEERING GURU Michael Hammer has a new agenda. More precisely, a new book called *The Agenda* (Crown Business, 2001), which discusses how business processes need to change to sustain companies throughout the next decade. *CIO* recently talked with Hammer about his book.



CIO: Why did you write *The Agenda*?

Hammer: I spend my time trying to see why some companies do well and others don't. When I see a number of consistently smart and successful companies do something, I conclude that this might be something interesting. What I've seen over the past five years is a set of issues focused on what it takes to operate successfully in [today's] environment. And I knew I had to write a book, which is not something that you generally *want* to do. It's financially a terrible thing and tedious as well. You only do it if you feel as if you will explode if you don't write it down.

What's the book's overarching theme?

The basic premise is that we are operating in a new environment, which I call the customer economy. It sounds familiar, but it's very different. It's driven by overcapacity in nearly every industry—the overcapacity of the worldwide steel industry, for example, is larger than the total capacity of the entire U.S. steel industry. We also have the effects of globalization, shorter production cycles and more sophisticated buyers, all of which mean that the customer rules. But strangely, and in spite of a lot of lip service, companies still don't put the customer first in their business processes.

For example, measurement systems are undoubtedly very important. But they don't measure the right things. If you ask, "How long does it take your company to fill an order, or how much does it cost to fill an order?" people say, "Huh?" They know the functional costs associated with each department, but they don't know the end-to-end costs per unit.

Where does CRM software fit in?

Nowhere, because we don't have real CRM yet. Real CRM would be almost as monolithic as ERP. It would integrate all interfaces with customers over time. But when you buy CRM software now, you find that it's nothing like that. It's sales-force management software or call center software.

I.T. IN THE
AFTERMATH

Call Up the Net Guard

IN RESPONSE TO the Sept. 11 attacks and the possibility of future incidents, the Society for Information Management (SIM) is creating an Information Civil Defense Task Force (ICDTF). SIM President Ray Hoving describes the task force as a vehicle "to enable us to join together in protection of our information assets, just as our forefathers created civil defense to protect our physical and human assets."

It started with a working group of about 15 people, mostly based in New York, aiming to establish an advisory committee of about 12 senior CIOs from around the country. The committee will work with the office of Sen. Ron Wyden (D-Ore.), who has called for the establishment of a National Guard-type service for technology. "We could help bring either knowledge, expertise or infrastructure to a place and help in the event of a future terrorist attack," says Ed Cannon, ICDTF chairman and CIO of the Grey Global Group.

While the task force's first role is advisory, Cannon says it will evolve over time. For example, the group will also focus on outreach. Cannon points to research from Gartner that indicates only 15 percent of American companies have business continuity plans in the event of a disaster. "That is a major hole," he says, "so in conjunction with SIM, we will be posting research [provided free from Gartner] on the Web about disaster recovery and business continuity planning. That's the first thing we are doing: putting together some quick-hit, simple things that people can use." The task force is also considering developing a core of volunteers who could give presentations about disaster recovery, business continuity planning and handling virus attacks.

Interested in participating in this task force or need more information? Contact Ruth Gallagher at SIM Headquarters (312 245-1581 or rgallagher@sba.com).

—Sandy Kendall

Additional reporting by Danielle Dunne

The screenshot shows a window titled "http://www.brainbench.com/brainbench/strata.asp?user=6707646&id=103&test=103&exam=103-103-103". The window contains the Brainbench logo and the title "Sample Benchmark Report". The main text explains that the report helps evaluate how test scores relate to real people in an organization, comparing an individual's score to others at the same level. It mentions that for all scores included, the % score, low score, and average scores are computed, and a histogram of included results is produced, along with bar charts of individual topic scores.

Report Information:

Company:	Your Company Name Here
Generated by:	Value System User
Report Date:	11/24/2000
Start Date:	9/24/2000
End Date:	11/25/2000
Test Module:	C++
Min Score:	10

Subject Codes: Stage I, Stage R, Stage II, Stage III, Stage IV, Stage V, Stage VI, Stage VII, Summary

Benchmark Summary Table	
Racers Analyzed	21
High Score	3.8
Low Score	1.37
Average Score	2.73
Brainbench Avg Score	2.72

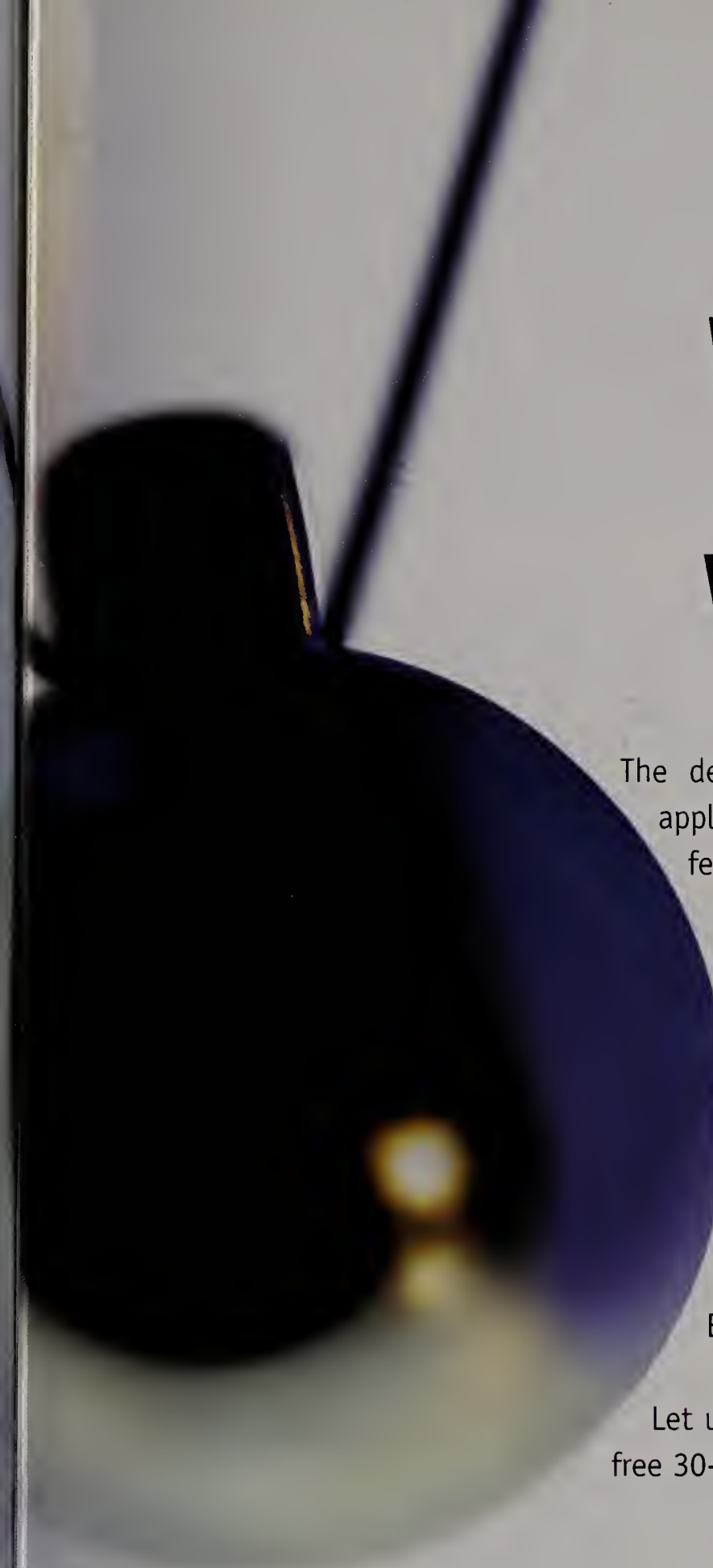


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HOW TO

BE A SUCCESSFUL CIO

Good-bye, 2001. We couldn't be happier to see you go. Company earnings slid, budgets followed, and most organizations were suddenly faced with having to do more with less. CIOs were forced to lay off some of the very employees they had tried so hard to recruit just months earlier. And then, on Sept. 11, America's post-Cold War sense of security and stability collapsed along with the World Trade Center towers.

Some things will never be the same. But in the spirit of new beginnings, we offer our readers a manual for surviving—no, make that flourishing—as a CIO in 2002. In this special How-To issue, we hope to provide guidelines for almost every aspect of a CIO's life, from office politics ("How to Play Your CFO Like a Fiddle," Page 50) to information security, CRM, e-business and outsourcing ("How to Adapt Your Offshore Strategy to an Insecure World," Page 88). Not to mention how to deal with vendors, Wall Street, Microsoft and demanding CEOs.

Some of these stories are written by your peers, a few are tongue-in-cheek, many are dead serious, but all aim to provide down-to-earth advice for CIOs negotiating this new and hopefully improved year. So sit down, take off your jacket (see Page 99 for how to avoid wrinkling it), and enjoy the ride.

ILLUSTRATION BY GERARD DUBOIS



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HOW TO Play Your CFO Like a Fiddle

BY JERRY GREGOIRE

ACCORDING TO the handbook *Karma For Dummies*, a CIO who has been evil, cowardly or prone to signing outsourcing agreements in this life is condemned to spend the next as a bean counter. Justice indeed. In all, life as a CIO is better than a zero-sum game. The upsides do outnumber the downsides, good times are more memorable than the bad, and no matter how bad things get, you have the satisfaction of knowing that at least you're not a CFO—a knee-jerk pessimist, skinflint, spoiler.

Of the three large corporations I've worked for, PepsiCo was my favorite. It makes great products, aggressively develops talent, does its best to eliminate the hopeless jerks, and maintains a well-mannered and respectful workplace. I worked there for more than 10 years; my last gig was as the CIO of its largest and most profitable division, Pepsi-Cola Co. For better or worse, PepsiCo's traditional culture extended to its organization chart, so I reported to the CFO, my team buried (it seemed to me) in the finance department, a layer (and light years) away from where the real strategic decisions were being made. It drove me nuts.

I resigned in 1996 to take the CIO position at Dell Computer, in large part because Michael Dell agreed to move IT out from under finance and give me a seat on his senior team. Here, I thought, was a chance for IT to play a key role in strategic decision making, a place in the inner circle, a chance to spread the message of technology's bountiful goodness without having it filtered by some tight-fisted luddite. Hurrah!

Things don't always work out as planned. A CFO with no IT responsibility is just another dissatisfied department head, with lots to say about your budget and little compunction about char-

tering IT projects using outside resources. Even though I was no longer reporting to the CFO, nothing really changed, so I had to fall back on old skills and even older tricks to get the situation and my soon-to-be best friend under control.

Now, it would be too dull and pointless to replay for you the dos and don'ts of managing up, especially since they **don't** generally work with CFOs. The most effective method, known to only a few and shared with you at considerable personal risk, is a reversal on the Stockholm Syndrome—wherein the hostage identifies with his captor, except in this case the CFO identifies with you, sees in you a soul mate, a fellow bulwark, a CFO in the making. It's a touchy process and won't come naturally to most CIOs, but here are a few tips to help you get started.

EXUDE AN AIR OF PESSIMISM. Keep in mind that most CFOs started out as accountants because they didn't have the charisma to become undertakers. Wear a look of grave concern when considering any issue or problem, no matter how insignificant. Openly bemoan the burden of IT spending while constantly reinforcing the price of inaction. Underpromise when you have to; don't promise when you can get away with it. Grimly shake your head and whisper to the person next to you when other department heads make budget presentations. And for heaven's sake, stop smiling so much and lose that tiresome sense of humor.

DEFINE YOUR OWN SHORTCOMINGS. Face it, there's something wrong with you. There must be. And no matter what it is, how much you work on it, or even if it isn't true, that flaw will show up on your "personal development checklist" every year. So, the question is, Do you pick your development issues or take a chance and let someone else pick ones that might make you seem untrustworthy to a CFO? For example, "Needs to Develop Business Savvy" will frighten the CFO, while "Needs to Improve Work/Life Balance" will make you downright lovable. You can ensure that this makes your list by sleeping in your office a couple nights a week or by getting a divorce.

UNDERCOMMUNICATE. When it comes to the CFO, communications concerning projects, people or service levels should be regularly scheduled, as infrequent as you can get away with and, by all means, short. The questions, issues and small fires you handle every day and never give a second thought to would, if shared in detail, unhinge your CFO. When things are going well, say so (being careful not to violate the first tip), and when things aren't going well, just remember that there isn't a damn thing the CFO can do to help.

FINALLY, BE BORING. Remember that CFOs are easily frightened and confused by change. Try wearing the same clothes every day.

Good luck. **CIO**

Author Jerry Gregoire
fiddling around on his
Texas ranch.

Jerry Gregoire, former CIO of PepsiCo Food Services, Pepsi-Cola and Dell Computer, now spends most of his time serving on boards, speaking, writing for *CIO* and chasing horses.

PHOTO BY STEVE RAWLS



HOW TO Build Customer Loyalty in an Internet World

BY EDWARD PREWITT

I F YOU REALLY WANT CUSTOMERS to keep coming back, then toss out those glossy brochures from vendors looking to sell you the latest in CRM software. Customer loyalty does not stem from clever stratagems to collect every conceivable piece of data from customers and then cross-sell them something they don't want, says Fred Reichheld, Boston-based Bain & Co. director emeritus and Bain fellow who has studied the topic.

In fact, the very concept of customer relationship management is misguided, Reichheld argues. Companies shouldn't try to *manage* loyal customers, he says; long-standing relationships arise from trust gained over many transactions, and they are sustained by customers' belief that the company wishes to keep them around rather than drive them away.

"CRM is manipulation in too many cases. Companies are acting on information of customers against their interests—calling them at home at night, charging them at the highest price point [that CRM software shows they will pay]," says Reichheld, author of two books on loyalty, including *Loyalty Rules* (Harvard Business School Press, 2001). "Loyalty means listening to your partner, creating mutual satisfaction."

Customer loyalty seems like a quaint notion in the Internet age, when customers can search out lower prices and defect to competitors with a mouse-click. Yet Reichheld's research has found that in the faceless online market, customers yearn for trustworthiness more than ever. Give it to them and they're yours forever, he says. That kind of loyalty is immensely valuable: Reichheld's analysis shows that a 5 percent increase in customer retention rates results in a 25 percent to 95 percent increase in profits. Clearly, customer loyalty is too central to companies' for-



tunes to be left to the marketing departments alone. And with technology so important in determining retention—or customer disaffection, if technology is improperly used—CIOs have a role to play. "If I were a CIO, I would really want to start to influence customer data," Reichheld says. This influence can take two forms, he says: a redeployment of CRM software and the creation of entirely new metrics for customer loyalty.

SHOOING AWAY BUTTERFLIES

CRM is not altogether awful, in Reichheld's view. It's just that, too often, the standard CRM practices lead to vexation or worse from customers, not loyalty. Not many people enjoy being inundated with telephone calls and mailings from a vendor and its marketing affiliates. There is a good and virtuous use of CRM, however. "One of the best things you can do with CRM technology is find out who the valuable customers are—those who are staying, not

ILLUSTRATIONS BY DARREN RAVEN

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just any customer willing to accept your offer to switch [from a competitor]," says Reichheld.

CRM data can do more than tell your marketing department what to pitch to customers. CRM software can also be used to determine which customers are worthy of a sales pitch. This may sound counterintuitive to capitalists, but loyalty is a two-way street. "Companies should try to invest only in relationships where there's the potential for long-term value," Reichheld says.

What he calls butterflies—customers who jump from one promotional offer to another—do not create that potential. Such customers often don't even provide short-term value, in fact. Think

"One of the best things you can do with CRM technology is find out who your valuable customers are."

—FRED REICHHELD, BAIN & CO.

of credit card customers who flit from bank to bank following a succession of introductory rates. Instead, companies should invest their resources in courting "barnacles"—customers who are likely to stick around for many years, as long as they're treated right.

Once companies know who their best customers are, the real work begins—convincing them to stay forevermore. Dell Computer, for instance, uses CRM data to determine which customers have the greatest hardware needs and then provides extra value to that select group, in the form of free Web portals. Although Dell garners a great deal of valuable customer information from its sales transactions, which are largely conducted via the Web, the company abjures common practices such as selling customer lists to outside vendors. Instead, Dell has set up Premier Pages for thousands of its best customers. These customized, secure websites allow customers to check on order status, arrange delivery dates and troubleshoot problems through Dell's help desk. Many Dell customers, which tend to be large companies, use their Premier Pages to keep track of systemwide computer purchases for better asset management. "The Internet offers most businesses a rich set of possibilities for improving the customer lifetime experience, but few firms have matched Dell's initiative," Reichheld says in *Loyalty Rules*.

GAUGING CUSTOMER LOYALTY

IS groups are typically content to fulfill the data-gathering requests of other departments rather than create their own surveys. But if existing measures of customer loyalty are inadequate, perhaps it's time for CIOs to step up to the plate. Companies typically gauge how well they're serving customers by getting them to fill out satisfaction surveys. There's a far more effective way to measure satisfaction, Reichheld says: Rather than limit yourself to the fraction of customers willing to tell you what they think, track the percentage of customers who come back. Retention rates capture the real



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CUSTOMER RELATIONS

financial ramifications of whether or not a company is delivering high value to its customers.

Although less than 20 percent of companies track customer retention, a few use it to great effect, estimates Reichheld. USAA, a San Antonio-based insurance company, for example, has made customer retention the top metric for executive per-

“The question is, Is a company getting profits *from* customers or *at their expense*?”

—REICHHELD, BAIN & CO.

formance. USAA's budget submittals must address how they will maintain or improve customer retention. Not surprisingly, the company has one of the highest retention rates of any insurer in the world.

A second loyalty metric that CIOs should consider instituting for their companies is Reichheld's own Loyalty Acid Test, found at www.loyaltyrules.com, which asks customers whether a company is worthy of their loyalty. The 25 survey questions capture how loyal customers

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Read more about Fred Reichheld's research in our **LEADERSHIP AND MANAGEMENT RESEARCH CENTER** at www.cio.com/leadership and learn the secrets of the companies **WHERE CUSTOMERS RULE** at www.cio.com/printlinks.

are to a particular company and why. Reichheld benchmarked the acid test with several companies that his research has identified as “loyalty leaders,” including Enterprise Rent-A-Car, Harley-Davidson, Intuit, L.L.Bean, Northwestern Mutual, USAA, The Vanguard Group and

SAS Institute. Overall, 70 percent of their customers said these eight companies deserved their loyalty—compared with less than 50 percent of the customers of a representative sample of all U.S. companies.

While keeping customers happy makes sense on an intuitive level, Reichheld is at pains to stress that it is good business sense. “The question is, Is a company getting profits *from* employees and customers or *at their expense*?” he asks. If the answer is the latter, then CIOs do their company a painful but important service in revealing the extent of customer dissatisfaction. **CIO**

How loyal are your customers? E-mail Senior Editor Edward Prewitt at eprewitt@cio.com.

POLITICS

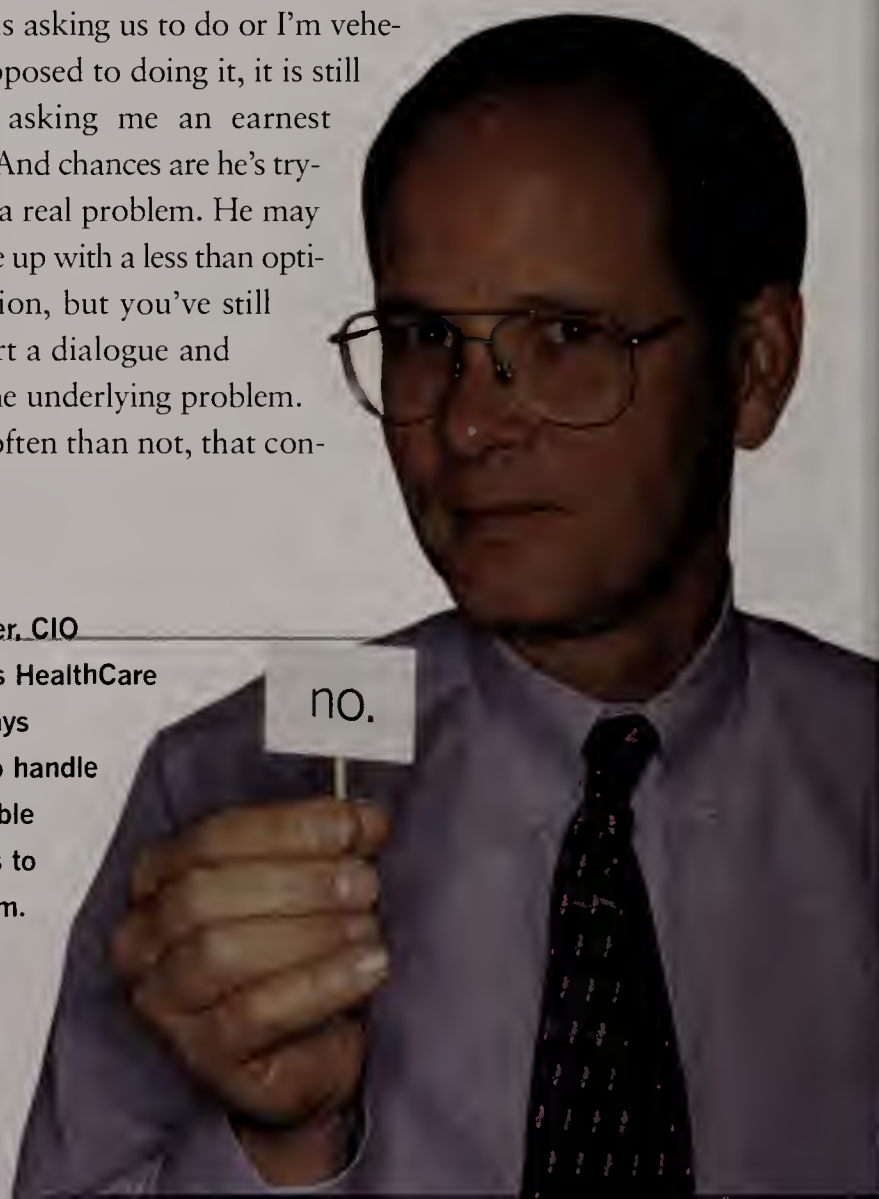
TO SAY NO TO THE HOW CEO

BY JOHN GLASER
WITH STEPHANIE OVERBY

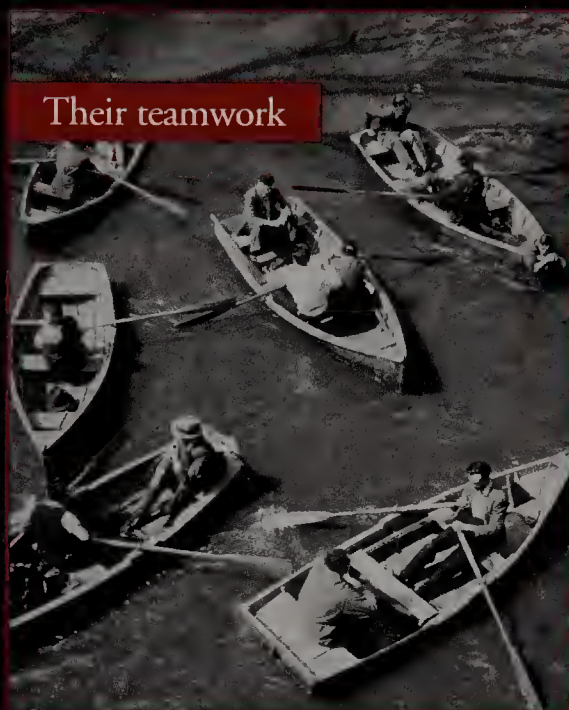
WHEN SOMEONE ASKS YOU for something, I don't care if you're dealing with a child or a CEO, you can't just say “No,” or “What are you, nuts?” That is not a real response to a query made in earnest. To avoid that, I approach every conversation—whether it is with my direct report or the chairman of the board—as a conversation between peers. Even if I'm not sure we ought to do what someone is asking us to do or I'm vehemently opposed to doing it, it is still someone asking me an earnest question. And chances are he's trying to fix a real problem. He may have come up with a less than optimal solution, but you've still got to start a dialogue and address the underlying problem.

More often than not, that con-

John Glaser, CIO of Partners HealthCare System, says one way to handle unreasonable requests is to ignore them.



PHOTOGRAPHY BY JOHN SOARES



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POLITICS

versation can be as simple as suggesting further analysis of the situation: "Let's bring a consultant in," or "Let's ask Sally and Herb to take a look at this." No matter what the words are, what you're saying is, "Let's explore this a little further before we make a decision." Chances are the people you're dealing with will be responsive to this approach.

In one case, one of the senior members of our medical staff thought the IS department should lead the charge in reducing medical errors. I knew this was something that the medical leaders needed to address. It wasn't appropriate for the IS guy to go in there and say, "Hey you guys are making too many mistakes, and we're

going to fix that." This was a very senior member of the executive team with enormous influence and power, but I knew he was just frustrated. The organization wasn't moving fast enough, and he thought IS could speed things up. While there are some cases where IT should be the mover, I knew that given the issue and the way our business community works, our medical department should lead this effort, and I told him that by saying, "Now will I help you with this? Damn straight. But let's talk about how we move this along *together*."

I don't want to be Pollyannaish. There are situations in which a person holds to her beliefs and the collegial approach won't

work. At the very least you should invoke what I call the "arbitration rule" and get the opinion of two other folks on the situation.

Every now and then, you will get stuck with a person who is going to say, "We're going to do this no matter what." But that ought to occur in the low single-digit percentages. I remember more than a decade ago, when we were trying to get out of an outsourcing agreement, my boss wanted to bring in attorneys, play hardball, and yell and scream about it. I wanted to take more of a high road. I went over his head to explain why [to his superior as well as to him] and told him that if I was wrong we'd go back to his plan, which we eventually did. And I think that the months of keeping to the high road made it easier to play hardball when the time came to do so.

If all else fails, ignore the request. Really. Wait and see if the issue comes up again. If it doesn't, it was just a flash in the pan. But if it comes back, it's real. A couple of years ago, we were going to buy some new financial systems and someone suggested, "Hey, why don't we write them instead." Now I certainly did not want to have to write them, but I listened dutifully. Then I just let it slide. It never came back. **CIO**

Having trouble saying no? E-mail Senior Writer Stephanie Overby at soverby@cio.com.

When someone asks you for something, I don't care if you're dealing with a child or a CEO, you can't just say "No," or "What are you, nuts?" and leave it at that.

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HOW TO Not Recover from Getting Hacked

(A Loser's Guide to Failure)

BY SARAH D. SCALET

IT'S A FOX TELEVISION SPECIAL waiting to be made:

When hackers attack. There's blame and blunder, sensationalism and surprise, and a theme song whose sinister refrain reminds you that no one—not you, not your competitor—really knows the best way to respond to an information security breach.

With pervasive fears about terrorism, security threats have proven all too real. Our antidote to the doom and gloom? A guide for what *not* to do when you get hacked. So take a moment to learn from the mistakes that others have made. Because your chance to avoid these worst practices might be just around the corner.

1. DENY, DENY, DENY

Not admitting that you have a problem is the first step to not recovering. In a recent *CIO* survey of CIOs and other top IT managers, only 41.1 percent of the 600 respondents said they would know when their systems were under attack. Time and again, studies show that companies are simply not aware of security breaches.

"You'll hear companies say, 'I've never been hacked,' when what they really mean is, 'I've never detected that I've been hacked,'" says Bruce Schneier, author of *Secrets & Lies: Digital Security in a Networked World*, and CTO and founder of Counterpane Internet Security in Cupertino, Calif. Once a company starts monitoring its systems for intruders, he says, "they're amazed at the amount of activity going on that they never had any window to see."

Then there are those pesky employees who retaliate after messy

layoffs. In August, for instance, *The New York Times* reported on an IT executive who caused up to \$20 million in damage when he sabotaged the computer systems of the New Jersey chemical company that had laid him off. Cases like that underscore the fact that the majority of security breaches are by insiders.

Your employees, on the other hand, are hardworking, loyal and honest. That must be why, in that same *CIO* survey, 34 percent of the respondents indicated that they don't store critical data on a restricted or confined system, away from other company information that requires less security. In other words, once intruders are in, they can get access to anything and everything.

2. PANIC!!!

On the flip side, there's the tale of MIT. A couple of years ago, officials at the tech-savvy university reported that a hacker had altered grades in its computer system. The next day, they sheepishly retracted the statement, explaining that a teaching assistant had made a data entry error.

When business and IT employees think they're under attack, they panic. They call all the wrong people, they start rebooting or unplugging computers, and in the process they often do more damage—either to data, business continuity or the organization's reputation—than the intruder would have done. This is especially true when companies have installed intrusion detection systems,

"You'll hear companies say, 'I've never been hacked,' when what they really mean is, 'I've never detected that I've been hacked.'"

—BRUCE SCHNEIER,
AUTHOR OF *SECRETS & LIES: DIGITAL
SECURITY IN A NETWORKED WORLD*

which generate false positives that security experts need to sort through for the real problems. "While it's true that most companies may not know that they've been hacked, those who have taken a lot of precautions can find that they have hundreds of alerts," says Jay Ehrenreich, senior manager in the cybercrime prevention and response group at PricewaterhouseCoopers in New York City. "The question is, which are the ones that you really want to focus on, and how do you know for sure? That's the next level of the problem."

The only way to prevent chaos is by establishing a clear incident-



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SECURITY

response plan, which explains whom employees should call when they suspect a problem, how and when this information should be shared with other employees or the media, and how the company will fix the problem. Most companies, though, are well-poised for a panic attack. Again, according to the *CIO* survey—a veritable guide to worst practices—only one-third of the respondents said they had a procedure for responding to a security problem.

3. DESTROY THE EVIDENCE

Ed Skoudis, author of *Counter Hack: A Step-by-Step Guide to Computer Attacks and Effective Defenses* and vice president of security strategy at New York City-based Predictive Systems, recalls several cases where evidence was stricken from a court case because it had not been adequately protected. In one especially memorable

When business and IT employees think they're under attack, they panic.

incident, a company that used a surveillance video to explain how a room was laid out inadvertently provided evidence against itself. The surveillance video showed that a safe containing evidence had been left wide open. "They weren't locking the safe because they didn't think what they had was important," Skoudis says. "You need to protect the information you gather." Even if you don't need it for court, it can help you figure out what happened and how to fix the problem.

When investigating a security breach, a company should make a digital image of the relevant hard drive before doing anything else, like opening a file and changing its last access date. This image will include not only the files on the hard drive but also parts of the drive that contain evidence of deleted files. The original evidence must be locked up and have a clear chain of custody. Meanwhile, the image can be used for the forensics investigation.

"Change one bit, you must acquit," as Ehrenreich of PricewaterhouseCoopers likes to say when discussing the efferescent quality of digital evidence.

But who wants to mess with justice, anyway?

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For more on this topic, see our **SECURITY AND PRIVACY RESEARCH CENTER** at www.cio.com/security, as well as our **SECURITY SURVEY** at www.cio.com/printlinks.

4. WHATEVER YOU DO, DON'T CALL THE AUTHORITIES

Skoudis remembers another instance in which a large brokerage company got a call from hackers who claimed to have planted a logic bomb that would crash the company's computers at a certain time—unless the company paid them big bucks. The technical staff found no evidence of tampering, so the company ignored the call. Sure enough, the company's systems, which processed millions of dollars of transactions an hour, crashed at the appointed time. The next time the extortionists rang, the company knew that the threat was real and got law enforcement involved.

Law enforcement officials can look for patterns, collect evidence and sometimes put hackers behind bars, and this doesn't necessarily mean having your company's name dragged through the mud. Yet most companies haven't figured out that reporting a security breach can help not just them but also business as a whole. "When you give criminals impunity, it emboldens them," explains FBI Agent Mark Bowling in Milwaukee. "It's simple criminal psychology."

A whopping 36 percent of companies report hacks, according to the latest study done by the Computer Security Institute and the FBI. So you're off the hook. Someone else will fix the problem, and if you ignore hackers they will go away. Better yet, pay them off and then offer them jobs. You can trust them, right? (See number 1.)

5. IGNORE RUMORS, THEY'LL GO AWAY

In late October 2000, a security breach at Microsoft made headlines around the world. Early reports indicated that the intrusions may have lasted up to three months. But unnamed sources soon turned into company spokespersons, and the time frame dwindled to about 12 days. In the end, careful observers were sure only that the software giant's source code may or may not have been involved.

A year later, many experts still point to this as a classic example

HOW TO KNOW WHETHER THAT ATTACHMENT IS A VIRUS OR A NUDE PICTURE OF ANNA KOURNIKOVA:
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SECURITY of what a company should not do when news of a hack becomes public information—specifically, speak with separate and conflicting voices. “When you’re hacked, you can’t let the public think you’re part of the cover-up,” Schneier says.

When customers need to know about a problem, or when information about the problem is already in the press, the logical thing to do

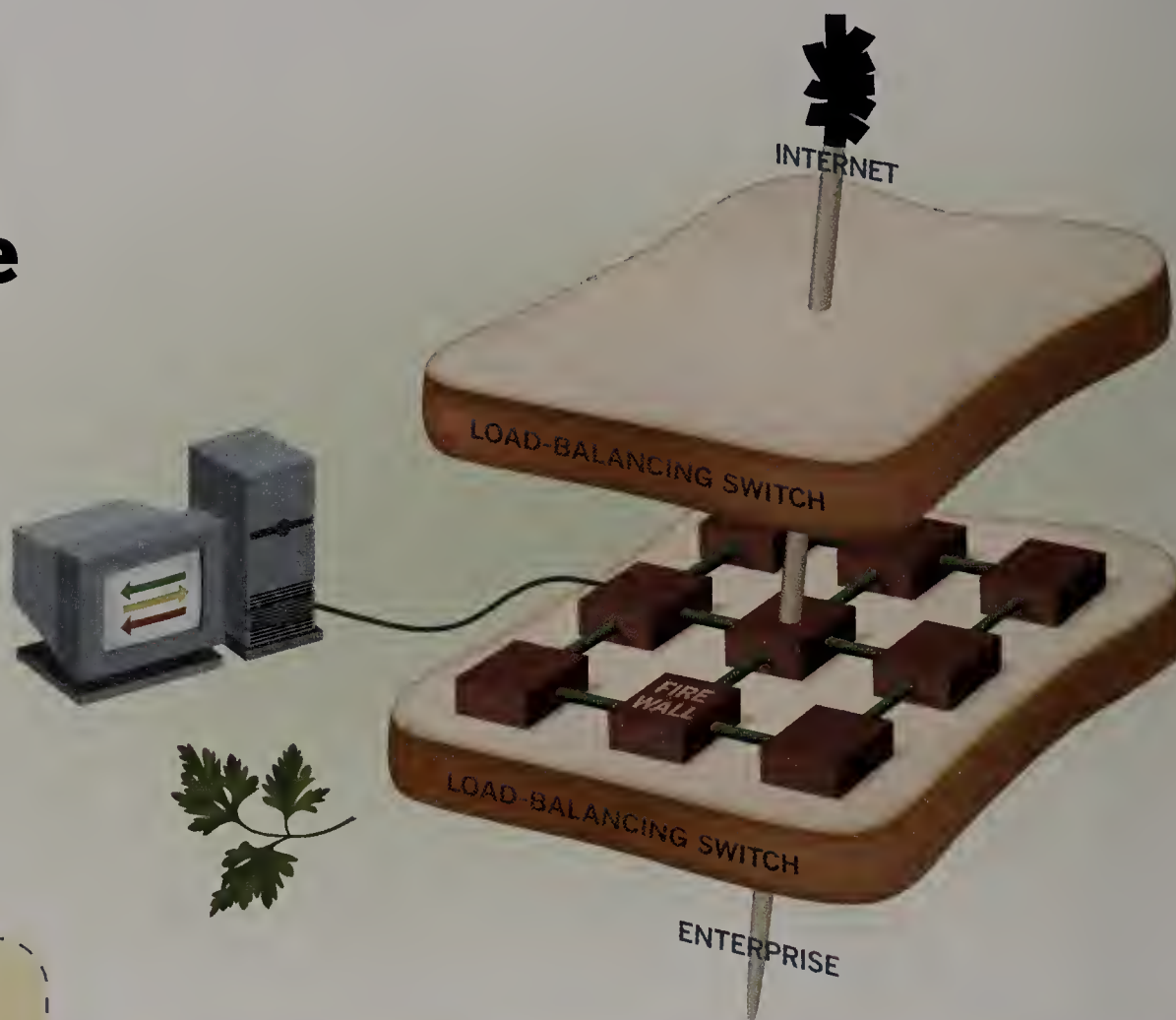
is issue a formal, factual statement about the fact that you’ve been a victim of a crime. But why not just rely on word of mouth? News will get out—and some of it might even be true. **CIO**

Lists are always incomplete. Tell Sarah D. Scalet, senior writer and security editor, your worst practice. She can be reached at sscalet@cio.com.

How to Make a Firewall Sandwich

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for making a tasty, high-performance security checkpoint to replace a bland, low-performing single point of failure at the border between your network and the Internet.



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INGREDIENTS

- | | |
|---|---|
| 2 load-balancing switches, fresh 1GB type is best | 1 Internet connection |
| 2 to 60 firewalls, to taste (see number 4 below) | 1 ounce of freshly prepared security policy |
| 1 bushel of Cat 5 Ethernet wiring, separated | Parsley sprigs |
| 1 PC with firewall management software | |

DIRECTIONS

1. Sprinkle security policy until it coats the entire enterprise.
2. Install management software on a PC. Use it to create the rules the firewalls will use to filter traffic coming in and going out of the network. Set aside with Internet connection.
3. At edge of the network, put in 1 load-balancing switch so that the end connecting to the Internet faces out. (The load balancers will make sure no single firewall is overloaded with traffic. They will also move traffic to a working firewall if another firewall breaks down.) Let sit.
4. Place firewalls behind switch. Depending on taste, place as few as 2 or as many as 60 or more firewalls in the sandwich. More firewalls will yield higher performance and less chance of failure.
5. Interconnect firewalls using Cat 5 Ethernet wiring (see picture). Also, connect firewalls to management PC for configuration.
6. Put second load-balancing switch behind firewalls.
7. Connect the switches to the firewalls with remaining Cat 5 wiring.
8. Plug Internet connection into the front switch and enterprise connection into the back switch.
9. Plug in power supplies. Turn all boxes on.
10. Decorate with parsley sprigs.
11. Serve in a cool room, 24/7. Bon appétit!

—Scott Berinato

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HOW TO Talk to Wall Street

BY BEN WORTHEN

ON FEB. 27, 2000, Robert Toomey and a number of other stock analysts listened to Nike executives explain via conference call that the company had missed its third-quarter earnings estimate partly because of a botched i2 Technologies supply chain software installation. A day later, on the recommendation of those analysts, Nike shares lost nearly 20 percent of their value. "Their manufacturing and deliveries got all screwed up," recalls Toomey, a Seattle-based stock analyst for brokerage company RBC Dain Rauscher. "They probably had to take back inventory, and that affected gross margins." And while the strength of the dollar and slower than expected domestic sales were also factors in Toomey's lower valuation of the company, the technology implementation figured prominently in his assessment. "It was like 'Wow. You screwed up i2?' [i2 is] supposed to be the leader in this," he says.

Toomey might have thought differently had Nike Vice President of IT Robert Tabb been available to explain the supply chain project's long-term impact. A technology expert like Tabb might have convinced analysts that the problem with i2 wasn't a threat to Nike's long-term stability and softened the stock market's blow, Toomey says. But Tabb wasn't part of the team making the company's case to investors. In fact, stock analysts almost never hear from CIOs about what IT is—or isn't—doing for a company's bottom line. And more of them, such as Toomey, are starting to think that's a mistake.

When CIOs do talk to analysts, their interactions take different forms. They speak at breakout sessions during company-sponsored analyst conferences, answer questions during conference calls brokered by their investor relations departments or chat



PHOTO BY GETTY ONE



COMMUNICATING I.T. VALUE

one-on-one with analysts about general technology questions. In every case, the interactions help establish the company as a technology leader and the CIO as a leader within the business. The same opportunity is available for other CIOs who want to be seen as strategic leaders and help their companies to build a better reputation on Wall Street.

Here's what CIOs need to know.

1. HAVE A MESSAGE. Every company has a story to tell Wall Street, and that story is determined largely by the CEO and CFO. Before talking with analysts, CIOs need to consult with their fellow senior executives to understand the message the company wants to deliver, and how information about the company's IT projects supports that message. By the time Victor Hawley, senior vice president and principal for Reed, Conner and Birdwell, an investment management company in Los Angeles, gets a CIO on the phone, he's talked to as many as 10 other executives. "I have a good idea of what the company strategy is by then," he says, "but I ask [about it] anyway to see if there is a disconnect." He wants the CIO to deliver the company message and say what the IS department can do to further the company's primary objectives.

James Metzger, former CTO with White Plains, N.Y.-based Texaco, who retired in October after the company merged with Chevron, says it was his responsibility to shape the message Texaco sent to the Street by ensuring that former CEO Glen F. Tilton (now vice chairman of the new company, ChevronTexaco) accurately described Texaco's IT initiatives and their impact on the bottom line. Texaco's investor relations department would set up phone calls with analysts so that Metzger could answer their questions about technical details, such as how the 3-D visualization technology the company is using to find new sources of oil leads to faster decisions about where to drill next. These conversations occurred on a case-by-case basis, when Texaco executives thought analysts needed more information, or when an analyst had a specific question, says Metzger.

Alex Alexander, CIO of the Computer Task Group (CTG), a Buffalo, N.Y.-based company that provides temporary staff and IT consulting services to commercial and government clients, says he contributes by being a general resource about technology companies for analysts that cover those organizations. The questions have nothing to do with CTG. Instead, he might be asked to compare IBM's software to Oracle's, or to explain why a new Microsoft product is slow to catch on. Analysts spread the word to their colleagues that Alexander is knowledgeable, which helps brand CTG as a leader in its field. Alexander believes that reputation builds confidence among investors.

In a time when the stock market is increasingly dominated by short-term speculative investing, conversations like those held by Metzger and Alexander can point analysts past the current quarter, says Pascal Levensohn, president of San Francisco-based investment company Levensohn Capital Management. And when analysts take a longer view, that helps to stabilize a company's stock price. Y2K taught Wall Street that companies' operations depend on the strength of their IT systems, a lesson reiterated by the current economic downturn and the Sept. 11 attacks.

What analysts learn from talking with CIOs and other corporate executives heavily influences their buy or sell recommendations. "If you have a [choice] to invest between a company that only has investor relations people talking and one that has an

CIOs can heavily influence analysts' buy and sell recommendations.

investor relations person, the CEO, CFO and the CIO, you will invest in the company where you hear from more people," says Hampton Adams, a San Francisco-based analyst with CIBC World Markets.

2. KNOW YOUR AUDIENCE. Analysts don't care about technology for its own sake. "They care about technology in the context of the business strategy," says Metzger. "I don't think they are remotely interested in Texaco's IT. They care about the results." Explaining how technology helps your company make more money than your competitors will lead analysts to recommend investing in your company.

With that in mind, one retired CIO from the beverage industry who met regularly with analysts at his company's investor conferences, offers this piece of advice: Keep your explanations simple. Don't use technical acronyms such as ERP, CRM and SCM. Not only is it too easy to get the acronyms mixed up, but analysts could be so busy tracking the three-letter storm that they miss the actual point of the presentation. Charts and graphs that may distract from the message are also off-limits.

Hawley remembers one meeting in which senior executives from a major national retailer, which he declined to name, couldn't explain why its inventory system was taking so long to install. "The guy talked about the data centers and all the things in IT," he says. "We sold the stock after the meeting." He looks for details about the return the company will get on its IT investments. The CIO can't say that he is doing CRM because other companies are. Hawley wants to hear that if a company is investing in CRM it will "grow by Y and have X return on the investment." That CIO, he says, understands that CRM is really about making customers shop more.

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COMMUNICATING I.T. VALUE

So if analysts ask, for example, about a major SAP investment, say the project will help your company make its production processes more efficient, and explain the ROI, says CTG's Alexander. Don't bother explaining why, technically, the latest package works better than what you installed before. And don't assume, just because they don't ask follow-up questions, that the analysts understand what they've been told. To make sure analysts get the point, Alexander usually asks them to recap the conversation.

3 THINK BEFORE YOU SPEAK. Once a CIO talks to an analyst, word gets around. "You will be bombarded with calls," says Michael Newman, president of ■ Seattle-based investor relations firm Street Connect. That's because analysts want information from as many sources as possible. But corporate executives can get in serious legal trouble for telling them too much. An October 2000 Securities and Exchange Commission rule called Regulation FD (Fair Disclosure) requires that any information about a company that could affect its valuation must be announced publicly, not just to one or two analysts. Failing to comply could, in extreme cases, lead to fines or shareholder lawsuits. News reports note that several companies, including Raytheon and Motorola, have been investigated by the SEC for Regulation FD violations, although none have been fined or taken to court.

Responsibility for adhering to the regulation rests with the company because "we don't know what is material and what isn't,"

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says CIBC's Adams. Even an off-the-cuff remark can be considered a violation. The most immediate remedy is a press release making the statement a public matter. Any time

a company issues a press release titled, "Executive Says Business Is Great," it's a good bet someone slipped up.

But if CIOs stick to the legal rules and the company message, the risks of talking to financial analysts are vastly outweighed by the opportunity to help shape the company's image among investors. A CIO is a credible and authoritative voice on technology issues, and, as these issues become more and more important to Wall Street, the CIO's views will be increasingly in demand. And, says the former beverage industry CIO, the role fits naturally with the CIO job. "You need to have a long-term vision," he says, "but you have to deliver value quarter to quarter." **CIO**

Talking to Staff Writer Ben Worthen is easier than talking to analysts. You can e-mail him at bworthen@cio.com.

How to Translate Geek Speak

YOU'VE PROBABLY SAID SOMETHING like it 20 times a day while bantering with your IT colleagues: "Let's take this ERP discussion offline with Chuck, who can penetrate the FUD on this." This makes perfect sense to your network manager, but your CFO will be baffled. As you prepare to do battle with that same CFO over your budget, being clear and concise is more important than ever.

So the next time you're in the boardroom trying to sell upper management on a plan to migrate away from your company's legacy systems, don't speak geek. Instead, speak the language of business. Here's a guide to help you translate some examples of techy talk into the kind of lingo any CFO (or CEO) can understand.

"We'll need to kludge around a bit to fix that bug in the system."

Translation: "We're going to avoid some computer problems by working around them."

"This will give us a multitier architecture that's low maintenance, flexible and robust."

Translation: "The technology is useful, cheap and it won't break."

"We have very scarce PC real estate."

Translation: "We don't have room on this computer for all those nutty programs you want to add."

"Version 5.1432 of Acme Technology's new suite of integrated KM, CRM and ERP wireless tools suffers from software bloat."

Translation: "This software contains more features than we'd ever need, and it's too complicated to run."

"The vendor is gonking when he tells you the software will instantly give us a robust SFA system."

Translation: "They're lying. That sales-force automation product doesn't work."

"We've got to get rid of this meatloaf."

Translation: "We're going to install a system to block the jokes, pyramid messages and other useless e-mail."

"I realize that this m-commerce software has a lot of object value."

Translation: "I know you really want this wireless e-commerce technology, but let's figure out what it does before we buy it."

"I can leverage that inventory-management module across multiple channels."

Translation: "I can track inventory online and in our stores."

"That consultant thinks he's a member of the digerati."

Translation: "That guy says he knows something about computers and the Web, but he's clueless."

"Promising to install an ERP system in two weeks was a real CLM."

Translation: "Now that I've deep-sixed my career, what kind of severance package do you think I can get?" —Mindy Blodgett

HOW DID SALESFORCE.COM ADD MORE CUSTOMERS IN THE PAST TWO YEARS THAN ANY OTHER CRM COMPANY?

Is Siebel 7.0 too Little, too Late?

...Siebel faces increasingly strong competition from ... competitors such as salesforce.com ... Siebel is known for lengthy and expensive implementations.

Hurwitz Group, Trendwatch

"Six months and half-a-million dollars later, companies that chose traditional client/server CRM vendors still had nothing to show for it. With salesforce.com, we have results."

Michael Blumenthal

Vice President and Chief Technology Officer, Essex Corporation

"With the help of salesforce.com, we are a more successful enterprise. It gives us a more coherent culture and makes us more competitive. It has been bottom-line profitable for us within six months. I just don't see how you can help but make money using this product."

Donald Putnam

Chairman, Putnam Lovell Securities

In less than two years, salesforce.com moved from start-up to number two in CRM customers served.* Where did the established CRM companies go wrong? Simple. By the time their customers bought all the hardware, installed the software, and completed customization, their businesses had changed. Given today's pressure on profits and revenues, business is moving to salesforce.com, the world's largest online customer relationship management service—including over 3,000 companies such as Adobe Systems, Autodesk, Wachovia and Siemens PT&D. See how fast your company can benefit. Call 1-800-NO-SOFTWARE, or visit www.salesforce.com and enter Promo Code Q1213 to activate your FREE 30-day test drive.

salesforce.com

#1 in Online CRM



SALES / SERVICE / MARKETING

HOW TO Cut Through Vendor Hype

BY SCOTT BERINATO

THERE IS NO BIGGER WASTE of time than listening to a vendor herald the nonexistent virtues of a nonexistent product in an impossibly obtuse language called marketese. Read these tips—courtesy of two whistle-blowing PR reps (we'll call them John and Jane)—so that you don't squander another second of your valuable time.

FIRST OFF, DON'T BELIEVE WHAT YOU HEAR OR READ (UNLESS IT'S IN CIO). In high tech, everyone's on the take. At least that's the sense you get talking to John and Jane. There's so much backscratching between allegedly objective information sources and vendors that not much of anything is worth investing time in.

"When we give analyst references, all those folks are pretty much on the dole these days," John says. Analysts have become aggressive about not providing vendors with reviews or insight unless there's a payoff involved. (See "How to Analyze the Analysts," July 15, 2001.)

To prove it, John shows off an e-mail from one analyst company, call it MegaAnalyze. His client company (call it Company X) asked for a briefing with MegaAnalyze. MegaAnalyze replied by asking, "Is Company X willing and able to commit at least \$[X]/year for an ongoing relationship?" In other words, no cash, no chitchat.

White papers are often as bogus as the analyst opinions. Even if a white paper has "independent" authors, it could have been written—or heavily influenced—by the vendor's marketing department. Tech journalists, in fact, are often offered large sums of money to ghost write white papers for vendors.

DON'T EVEN BELIEVE OTHER USERS. Well, at least there are user references, right?

Wrong. User references, which many CIOs rely on when evaluating vendor claims, can be equally dubious. Vendors have so much difficulty recruiting users for that purpose that they will offer kickbacks to users who play ball—free consulting on a project, for example, or a knock off on price.

And secondhand references are completely worthless. "Sometimes you hear these stories from vendors, 'We have this one customer who's getting all these benefits out of the product, but we can't tell you who they are.' Beware of that," Jane says. "Demand to speak to customers. If the vendor won't provide them, then that's a pretty good tip-off that the product doesn't work yet."

READ CROSSING THE CHASM BY GEOFFREY MOORE. Not because it's good but because it's the high-tech marketers' playbook.

A sample, from page 132: "How far must one go to serve one's customers? Well, in the case of crossing the chasm, one of the key things a pragmatist customer wants to see is strong competition. If you are fresh from developing a new value proposition...that competition is not likely to exist—at least not in a form that a pragmatist would appreciate. *What you have to do then is create it.*" Create enough hype, Moore advises, and the hype becomes the reality.

Vendors eat this stuff up. "I was at a client site," says John, "and the guy actually said, 'I assume you're all *Chasm*-enabled here,' and I just agreed because at the time I didn't know what it was. Now I know."

Jane tells this story: One of her clients wanted to be considered a player in the security market. To do this, it entered a competitive evaluation with other vendors, even though it didn't have a product. The vendor built one copy of the product it intended to create and entered that into the evaluation against real products.

"I was hoping they'd fail miserably, to teach them a lesson," Jane says, recalling that as much time was spent fretting about what to name the product as to whether it would actually work. But the vendor fared decently, and customers and the press began believing it was, indeed, a player.

Obviously, a viable product was not necessary.

CONSULT A CONSUMER REPORT. Perhaps the best way to cut through vendor hype is to pay someone else to do it. Like Doculabs.

The 8-year-old Chicago company is the *Consumer Reports* of high-tech products. Doculabs takes no money from vendors; it charges end users for its analysis of the vendors' products.

Vendors submit to Doculabs' arduous evaluation—a two-day drain that includes interrogation, mock buying committees and, of course, lab tests to see if the products actually perform as advertised. All told, products are judged on up to 800 criteria.

Doculab Executive Vice President of Research Jeetu Patel gives vendors (150 of them last year in all areas of technology, including CRM, ERP and Web-based commerce) credit for undergoing the evaluation, which he calls anxiety-provoking. He says the hype



How to really squeeze your storage *costs* while maximizing application availability.

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ON STORAGE COST SAVINGS.**



VENDOR MANAGEMENT

problem in the technology marketplace is huge, and it begins with vendors' inability to think critically or objectively.

"Whenever we do an evaluation, we tell vendors what we think their strengths and weaknesses are," Patel says. "We always get unanimous agreement from them when we tell them their strengths.

And they always disagree with what we think are their weaknesses. You quickly realize that every vendor says their product is the most scalable, most reliable and will give you the lowest cost." **CIO**

Let Senior Writer Scott Berinato know how you cut through vendor hype at sberinato@cio.com.

How to Read a Press Release

Guaranteed real press release. Only the names have been changed. Total gibberish crossed out.

Foolya to Provide Interactive Voice Self-Service Support for Whizzo 7

GRABS YOUR
ATTENTION
BY CLAIMING
FIRST, BEST
OR ONLY.

CHICAGO and SANTA CLARA, CALIF.—Oct. 2, 2001—Foolya Corp. (Nasdaq: FOLA), ~~leading global supplier of end-to-end CRM solutions throughout the enterprise,~~ announced today its support for Whizzo 7, the seventh major release of Whizzo eBusiness Applications from Whizzo Systems (Nasdaq: WZZO), ~~the world's leading provider of eBusiness applications software.~~ Foolya will submit the integration of its Virtual Customer Service Representative (vCSR) technology for validation with Whizzo 7 within 90 days of general availability, providing organizations with ~~complete eBusiness solutions~~ that increase productivity, maximize revenue and profit, and significantly enhance customer acquisition, satisfaction and retention.

TRANSLATION:
SOON OUR
PRODUCT
WILL WORK
WITH THEIRS.

SOUNDS
WONDERFUL,
BUT CAN
NEITHER BE
CONFIRMED
NOR DENIED.

Whizzo Systems enables software vendors to ~~easily~~ integrate through its ~~open, extensible, advanced~~ Smart Web Architecture. Unlike rudimentary HTML clients, Whizzo Smart Web Architecture combines ~~a zero footprint,~~ browser-based Web client and a user interface with levels of interactivity and usability traditionally available only in Windows applications. The Whizzo Smart Web Architecture enables organizations to ~~leverage~~ the industry's best eBusiness applications at the lowest total cost of ownership.

TRANSLATION:
OUR BROWSER
IS BETTER.

TRUST US,
WE'RE CHEAP.

Whizzo 7 extends the reach and functionality of Whizzo Systems' ~~industry-leading suite of integrated, multichannel eBusiness applications,~~ enabling organizations to translate customer relationship strategy into execution by ~~effectively~~ aligning and ~~rapidly~~ integrating channels, employees and partners. Whizzo 7 allows organizations to manage, synchronize and coordinate all ~~customer touch points~~ across the Web, call center, field sales and service personnel, and partner channels.

TRANSLATION:
THIS VERSION
IS BETTER
THAN THE
LAST VERSION.

WHIZZO WORKS
WITH US AND
ONLY US.

Foolya is the only Whizzo Premier partner providing Interactive Voice Response (IVR) technology that has successfully validated integrations for natural language ~~speech solutions~~ with Whizzo eBusiness Applications. Working with Whizzo Systems, Foolya helps ensure a ~~complete best-of-breed~~ technology offering to cover all applications required for managing customer interactions regardless of access, including voice, e-mail, wireless and Web.

TRANSLATION:
WE DO
EVERYTHING.



THE TENTH ANNUAL

Enterprise Value Retreat & Awards[®] Ceremony 2002

JANUARY 27-30, 2002 ■ LOEWS VENTANA CANYON RESORT ■ TUCSON, ARIZONA

Join Us as We Discuss How to:

Restructure the Global
Value Chain

Realign Outsourcing Decisions

Manage Costs and Build New
Revenue Generators

Maintain Your Market Position

PLUS

- When to invest or play it safe
- Effective channels for service delivery
- Near-term enterprise technologies
- Business continuance strategies

FEATURED SPEAKERS

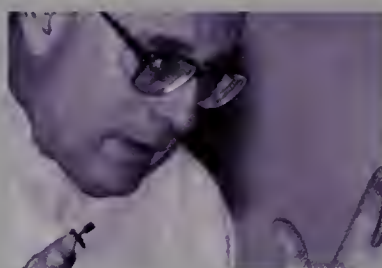
F. WARREN MCFARLAN
Senior Associate Dean
Harvard Business School

JARON LANIER
Lead Scientist
National Tele-immersion Initiative
and Chief Scientist, Eyematic Interfaces

**AND... MEET TODAY'S VALUE PIONEERS — THE WINNERS
OF THE TENTH ANNUAL ENTERPRISE VALUE AWARDS**

CIO MAGAZINE'S
ENTERPRISE VALUE RETREAT & AWARDS CEREMONY

Agenda



JOIN US AT THE TENTH ANNUAL *CIO Enterprise Value Retreat* for a two and a half day, intensive case study program, led by Harvard Business School's F. WARREN MCFARLAN, where we will examine how CIOs can more rapidly and reliably deliver performance to the overall organization. The stakes have never been higher!

SUNDAY, JANUARY 27

8:00 AM – 1:30 PM

Partners Golf Tournament

Enjoy a round of golf on the Ventana Canyon Course.

3:00 PM – 6:00 PM

Registration

8:00 PM – 9:30 PM

Partners Café Reception

Meet and network with other participants, Award Winners and Retreat Partners in our informal networking lounge.

MONDAY, JANUARY 28

8:00 AM – 9:00 AM

Registration and Breakfast

9:00 AM – 9:30 AM

Opening Remarks and Retreat Welcome

ABBIE LUNDBERG
Editor in Chief, CIO Magazine

What is Value? Lundberg explains how the decisions and deliberations of the Enterprise Value Awards judges reflect a shift in the IT value prop-

osition — and what it means for businesses today.

9:30 AM – 11:00 AM

Retreat Introduction: The Internet-Transformed Organization

F. WARREN MCFARLAN,
Senior Associate Dean, Director of External Relations, Albert H. Gordon Professor of Business Administration, Harvard Business School

Even with the seismic shifts in the economy and business priorities, the Internet, intranets and extranets are still deeply impacting the operations and competitive positioning of most major corporations. The critical question has become whether to be a fast adopter or a cautious follower. Different firms have followed both strategies, with great success.

11:00 AM – 11:15 AM

Enterprise Value Award Winner Presentation

One of this year's winners and

a member of the award review board outline the key implementation success factors of the project.

11:15 AM – 11:45 AM

Break

11:45 AM – 12:30 PM

Industry Briefings

Our Partners will lead small interactive group discussions on strategic business and IT issues.

12:40 PM – 2:10 PM

Working Lunch: A Special Security Session with US Department of Treasury CIOs

The tragic attacks of Sept. 11, 2001 clearly demonstrate the importance of preparing our nation to counter the threat of terrorism. Preparation includes protecting our nation's critical infrastructure. Hear a panel of CIOs from the Department of Treasury discuss lessons learned from the World Trade Center (WTC) disaster. Panel members include CIO Stephen Colo, United States Secret Service, CIO Patrick

Schambach, Bureau of Alcohol, Tobacco and Firearms and James J. Flyzik, Deputy Assistant Secretary and CIO, Department of Treasury. These agencies suffered devastating losses at their New York Offices, housed in the WTC complex.

Produced in cooperation with the National Critical Infrastructure Assurance Office (CIAO) of the US Department of Commerce.

2:25 PM – 3:10 PM

Industry Briefings

3:15 PM – 3:30 PM

Enterprise Value Award Winner Presentation

3:30 PM – 4:30 PM

The Near-term Future of Enterprise Technologies for Skittish Times

JARON LANIER, *Lead Scientist, National Tele-immersion Initiative; Chief Scientist, Eyematic Interfaces*

Once upon a time, before Sept.

To enroll or for more information, call 800 355-0246, fax the form to 508 879-7720, or visit our website at www.cio.com/conferences

11th, enterprises were expected to rely more on widely distributed personnel and achieve cohesion through telecommunications and network technologies. These technologies had not caught on quite as much as expected for two reasons: The human requirements were hard to meet, and prevailing customs and habits centered on travel. While no one would claim that travel will be replaced, telecommunications technologies will become more able to simulate presence at a distance. While full-blown tele-immersion will not be affordable for day to day use for years, approximate forms will evolve for enterprise use.

4:30 PM – 4:45 PM
Enterprise Value Award Winner Presentation

4:45 PM – 5:15 PM
Global Industry Value-Chain Restructuring
 F. WARREN MCFARLAN

Every aspect of the industry value chain is potentially transformed by IT. Inbound logistics, outbound logistics, sales and infrastructure all operate in an entirely different way in this new world. Organizations are rethinking their core competencies to decide what they wish to keep inside the company, and what they choose to delegate to others for execution. This realigning of what lies inside/outside the corporation is one of the deep IT-enabled transformations of the early 21st century. In the aftermath of Sept. 11, reliability, recovery and security loom higher than ever.

6:00 PM – 7:00 PM
Partners Café Reception
 Catch up with other participants in our informal lounge, share ideas and experiences.

7:00 PM – Midnight
Partner Hospitalitys

TUESDAY, JANUARY 29
 8:00 AM – 9:00 AM
Breakfast and Informal Roundtable Discussions

9:00 AM – 9:15 AM
Corporate IT Spending Trends — Where are They Headed?
 GARY BEACH
Group Publisher
 CXO Media Inc.

CIO Magazine, in partnership with Ed Yardeni, chief investment strategist of Deutsche Banc Alex. Brown, surveys a panel of senior executives on current and future IT spending as well as other issues. Beach presents an overview of the latest results and emerging trends from the CIO Tech Poll.

9:15 AM – 9:30 AM
Enterprise Value Award Winner Presentation

9:30 AM – 10:30 AM
e-Commerce Management
 F. WARREN MCFARLAN

Even as the world of B2B exchanges has fallen apart, the challenges and economic opportunities implicit in implementing B2B links and B2C links are moving forward rapidly (the bottom line contribution can be enormous). Two very different industries are looked at: telecommunications and financial services. This battle consumes the attention of everyone from the CEO to the CIO in trying to get it right.

10:30 AM – 11:00 AM
Break

11:10 AM – 11:55 AM
Industry Briefings

12:10 PM – 12:25 PM
Enterprise Value Award Winner Presentation

12:25 PM – 1:10 PM
Globalization
 F. WARREN MCFARLAN

In a way almost unimaginable three years ago, technologies have spread out across the globe and provided fundamentally new ways of distributing work and linking organizations together. The special challenges posed by certain environments, such as China and India, are dealt with. It is a vastly shrunken global arena that we are dealing with today.

1:15 PM – 4:00 PM
Luncheon and Case Study Workgroups
 Participants will break into small groups to analyze the case study during a working lunch.

4:00 PM – 6:00 PM
Informal Networking and Recreation

6:00 PM – 7:00 PM
Enterprise Value Awards Reception

7:00 PM – 9:30 PM
Enterprise Value Awards Dinner and Ceremony
 Come raise a glass and toast the winners at our black tie (optional) dinner and ceremony.

9:30 PM – 11:00 PM
Dessert Reception hosted by Enterprise Value Awards Underwriter, Genuity
 Cap off the evening with a special post-awards reception.

WEDNESDAY, JANUARY 30
 8:00 AM – 9:00 AM
Breakfast

8:30 AM – 10:30 AM
Case Study Workgroup Presentations and Discussion
 Groups present and discuss their case study findings to Robert Loeffler, Executive Vice President and Chief Work Process Officer and Don Beaver, Senior Vice President and CIO of the *H.E. Butt Grocery Company*.

10:45 AM – 11:30 AM
Reflection
 F. WARREN MCFARLAN
 The Retreat closes with a discussion of the specific management practices currently in use by leading adapters to the new information environment.

THE ENTERPRISE VALUE AWARDS CEREMONY IS PROUDLY UNDERWRITTEN BY

GENUITY



Loews Ventana Canyon Resort

The Loews Ventana Canyon Resort, where the Catalina foothills give way to the Sonoran Desert, covers 93 acres of resort area with two Tom Fazio designed golf courses, a 2.5-mile par-course for walking or jogging, several waterfall-dotted nature trails, biking areas, two pools, eight lighted tennis courts, a croquet court, and of course a full-service spa.

ENTERPRISE VALUE RETREAT & AWARDS CEREMONY

JANUARY 27-30, 2002

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TUCSON, ARIZONA

- ☐ I won't be able to attend, but please keep me updated on future CIO events.

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ENROLLMENT FEES

☐ IS Practitioner/Executive \$3,325

Please make your hotel reservations immediately by calling the Loews Ventana Canyon Resort at 520 299-2020. To receive the discounted rate, please mention that you are attending the Enterprise Value Retreat when making your reservations. This fee does not include hotel. Be sure to guarantee your room with a credit card, as all unreserved or unguaranteed rooms will be released on December 21, 2001. If a CIO conference Reservation Form is not received within 48 hours of making your hotel reservation, your room will be released from the CIO room block.

☐ Government/Military \$3,730

This fee includes your hotel for three nights. CIO will make your hotel reservations for arrival Sunday, January 27, and departure Wednesday, January 30. Additional hotel night reservations are your responsibility.

☐ Sales/Marketing/Consulting \$10,000

This fee applies if you hold a sales, marketing, business development or consulting position, including executive management of IT vendor and consulting companies. This enrollment fee is payable by company check only and does not include three nights hotel. CIO will make the final determination of this category.

☐ Companion Program Included in enrollment fee

Includes all scheduled meals, receptions and entertainment, companion breakfast and planned companion activities at the Enterprise Value Retreat. Companions are not eligible to participate in the golf tournament or Retreat sessions. Companions must be enrolled in this program to attend any Retreat function.

If this is your first CIO event,
your business card is required
to process your registration.

4ROBD2

- ☐ I will bring a companion, (Please note Companion Program details below on the left.)

NAME OF MY COMPANION

WHAT IS...

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All fees must be paid prior to the Retreat, and all cancellations and changes must be made in writing. You may cancel your Retreat attendance up to December 21, 2001, without penalty. A \$900 administration fee will be imposed for cancellations received between December 22, 2001 and January 11, 2002. No refund or credit will be given for cancellations received on or after January 12, 2002, or for no-shows. CIO reserves the right to limit attendance to practitioners and Partner organizations.

To enroll or for more information, call 800 355-0246, fax back to 508 879-7720,
or visit our Web site at www.cio.com/conferences

HOW TO Keep Up with Emerging Technologies

BY DEREK SLATER

THE HARDEST PART of the CIO job is keeping up with the never-ending avalanche of technology developments—that's what our readers tell us anyway. So we asked Ken Smith, CIO of Cleveland-based PolyOne, for some practical advice on handling the chore.

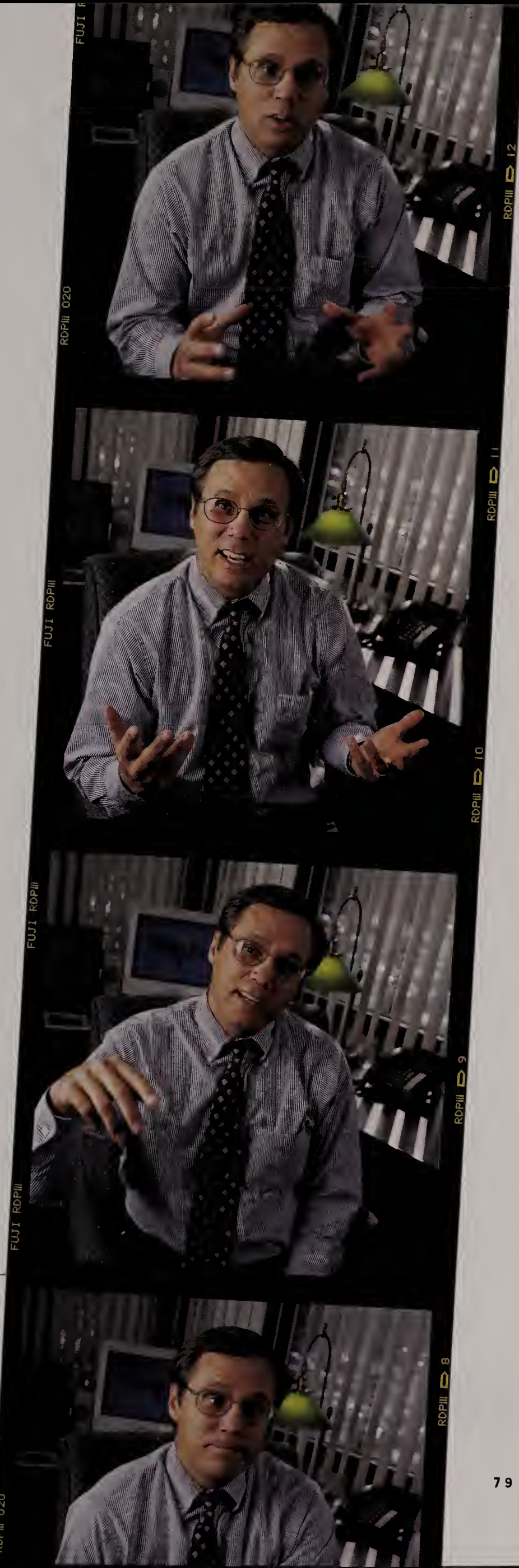
1. PRIORITIZE RUTHLESSLY

PolyOne is a \$3 billion maker of elastomers, colorants, plastic compounds and vinyl resins. The company was formed by a merger of Geon and M.A. Hanna in September 2000. It's global, has numerous product lines and manufacturing sites, is doing lots of e-commerce stuff, and is in the midst of migrating the two original companies' systems onto SAP R/3 as a common platform. Smith is busy. So he is very selective about which technologies he tries to track. "You can easily become overwhelmed by all the technologies out there, so the key is to remember that no one person can do it all. You have to ruthlessly prioritize," he says. For Smith, CRM is number one right now: "We think it has real potential as a competitive advantage." XML and wireless are next on the list.

2. DELEGATE

Smith relies on his technical staff to go out, research their areas of expertise, sort through the vapor and report back any developments that could affect PolyOne's IT setup, whether through new functionality or better cost efficiency. He says the company's experts do a great job staying abreast

"Remember that no one person can do it all," says Ken Smith, CIO of PolyOne. Smith asks consultants and staff to prioritize which technologies to monitor.



TECHNOLOGY EDUCATION

of their technology areas—desktops, midranges, networks and the like—but that PolyOne needs a better-defined process for capturing their feedback. Whether that's through casual lunches, formal committees or some other system, choosing a consistent method that works for PolyOne is on Smith's priority list for 2002.

Some of Smith's staffers sit on standards committees for emerging technologies such as CXML, a chemicals-industry variation of XML. That participation gives PolyOne the chance to help steer

Staying abreast of technologies is part of other people's jobs too. Use them.

their development. While Smith also notes that standards-setting is a slow process—his company can't afford to be paralyzed waiting for standards to coalesce—it's valuable to get involved early.

3. READ

But what to read? This leads to the next tip.

4. USE YOUR CONSULTANTS AND VENDORS

PolyOne uses services from Accenture for projects such as the current SAP rollout. Smith milks that relationship not only to query the consultants about their firsthand technology expertise but also to find out where to go for more. In the case of CRM, Smith says most of the reading he found on his own was "academic, not real-world." Accenture consultants pointed Smith to relevant research from other analyst companies. Staying abreast of technologies, after all, is part of the consultants' job too. Using their input is "a way of picking and choosing [the best content from analyst services] instead of joining all of them," says Smith. And consultancies such as Accenture typically have case studies detailing their own clients' technology implementations. Similarly, Smith also queries PolyOne's software and hardware vendors about their upcoming plans and the technologies likely to have an effect in their particular areas.

5. FORGET TRADE SHOWS

Smith, for one, chooses not to burn his limited time on expo floors. He says he just doesn't find them very useful, "other than for the T-shirts, maybe." **CIO**

Reach Executive Editor Derek Slater at dslater@cio.com.

TECHNOLOGY ON A BUDGET

HOW TO Build a 1.5 Terabyte SAN for Less than \$35,000

BY SCOTT BERINATO

LEW GOLDSTEIN IS A sound supervisor editor for C5 Inc. in New York City. C5 does postproduction audio for major motion pictures—which means it creates or embellishes every sound you hear in a movie from a dog bark to every spoken word. They put the hurricane in *Cape Fear*. The woodchipper in *Fargo* too.

Goldstein is also a closet IT guy. To store all those space-hogging audio clips, he built a 1.5 terabyte storage area network (SAN). He did this without a SAN vendor and for less than \$35,000, a

C5 Sound Supervisor
Editor Lew Goldstein
helped put the wood-
chipper in *Fargo*.



PHOTOGRAPHY BY CHRIS CASABURI



You've been trying to conjure up the magic

combination of servers and operating systems that will finally bring together your company's various departments.

Meanwhile, sales is pushing to get the CRM software installed by the end of the quarter. Marketing is screaming for help with the new Web initiative. Manufacturing is late implementing the next phase of the ERP system. And you're stuck there in the middle of the crossfire, glancing around the nerve center of your enterprise, waiting for the inspiration to arrive.

It would help if the servers you were working with were designed for the reality of today's complex business environment.

At HP, we always approach servers from the systems level, taking the extra time to consider how they work with your infrastructure as a whole. That's why we offer a broad range of server solutions that allow you to choose the ideal OS for your needs—from high-end enterprise systems to server appliances to blades.

All come bundled with sophisticated management tools that make it easier for you to manage your infrastructure across multiple operating systems. And as codeveloper of the next-generation multi-OS platform—the Itanium™ architecture—HP is in the unique position to make future upgrade paths a totally seamless experience.

HP infrastructure solutions—servers, software, storage, services and beyond—are engineered for the real world of business. Because the last time we checked, that's where we all work. Call 1.800.HPASKME, ext. 246. Or visit www.hp.com/go/infrastructure.

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TECHNOLOGY ON A BUDGET

third of what vendors charge for equipment alone—never mind pesky consulting and integration fees.

His SAN has never crashed. Once, he unplugged it on purpose in an attempt to cross it up. When he plugged it back in, sound editors returned to work as if nothing had happened.

Goldstein didn't set out to build a SAN because SANs are trendy. He did it because the transition from tape to digital editing was wreaking all sorts of havoc in audio postproduction. Digital audio files are big, and Goldstein has more than 45,000 of them. Every sound from the natural world—and thousands not of this world—is stored on a server's hard drive at C5. Most of them are bigger than 1MB. Here's a tiny sample: In *Get Shorty*, a 20-second clip of a 767 flying overhead was 8MB. Goldstein has gigabytes of "dins," which are long stretches of ambient city noise. Some dins run 15 minutes (120MB). Goldstein has a file called Aircraft Toilet Flush. He has a folder called simply Blowtorches.

C5 not only edits the sounds; it creates them. Each new movie

drives, too, at enormous markups. If he wanted fibre channel, they tried to sell him on SCSI—a technology his research taught him to avoid. One vendor offered a discount if he would beta-test its SAN. He thought that sounded like he would be working for them instead of the other way around.

A SAN, Goldstein says, is just a big rack of hard drives everyone shares. With a hobbyist's background and some dedicated research, he was able to learn the technology on his own and avoid vendors' upselling, technology biases, and their price tags.

Goldstein did have to call on a couple of vendors to complete his first SAN. He bought fibre channel switches and PCI-to-fibre channel cards. He found a humble little company that sold him empty racks at a good price.

He picked up 10 9GB drives on eBay. He spent \$51. Total.

Don't scoff. They've never crashed.

He put each \$5.10 eBay drive in one of the empty racks and connected the rack to the switches that in turn connected to four end users. "I slapped it together, and it worked," Goldstein says.

"I had probably spent less than \$5,000 at this point."

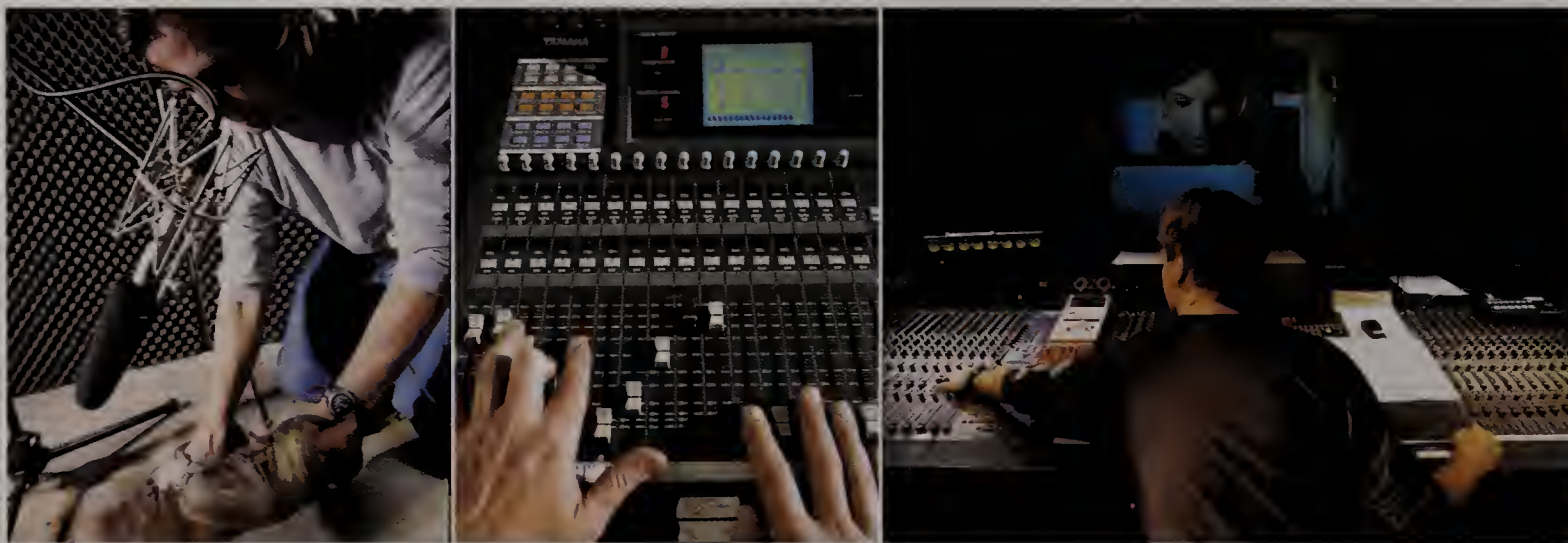
The thing hummed, and C5's editors started jumping on board. Four nodes became eight. Eight became 16. Soon, every sound editor was connected. Users could share files. No more local replications. The editing process became more efficient and more collaborative. Goldstein believes without his SAN, C5 couldn't have pulled off the audio postpro-

duction on Ang Lee's *Crouching Tiger, Hidden Dragon*. Lee was dissatisfied with much of the movie's audio, and he leaned on C5. With the SAN, multiple members of the crack team could work simultaneously on a file. By the old method, each editor had to wait for the previous one to finish his work and upload it.

The system keeps growing. Goldstein now buys 73GB drives for about \$700 each—still a minor theft. He has more than 3 racks running 1.5 terabytes of storage. He just added 500GB without a hitch. Each editor gets his own 20GB workspace, and each has access to the archive of 39,000 (and growing) audio files. In fact, Goldstein finds SAN-building so straightforward, he now sells them on the side.

The sounds of Scorsese's New York, every wistful breeze in an Ang Lee film, every Coen brothers gunshot is sitting there on Lew Goldstein's first SAN at C5. That's probably a billion dollars in ticket receipts, and Goldstein has yet to spend \$35,000. **CIO**

Senior Writer Scott Berinato loves a bargain. E-mail him at sberinato@cio.com.

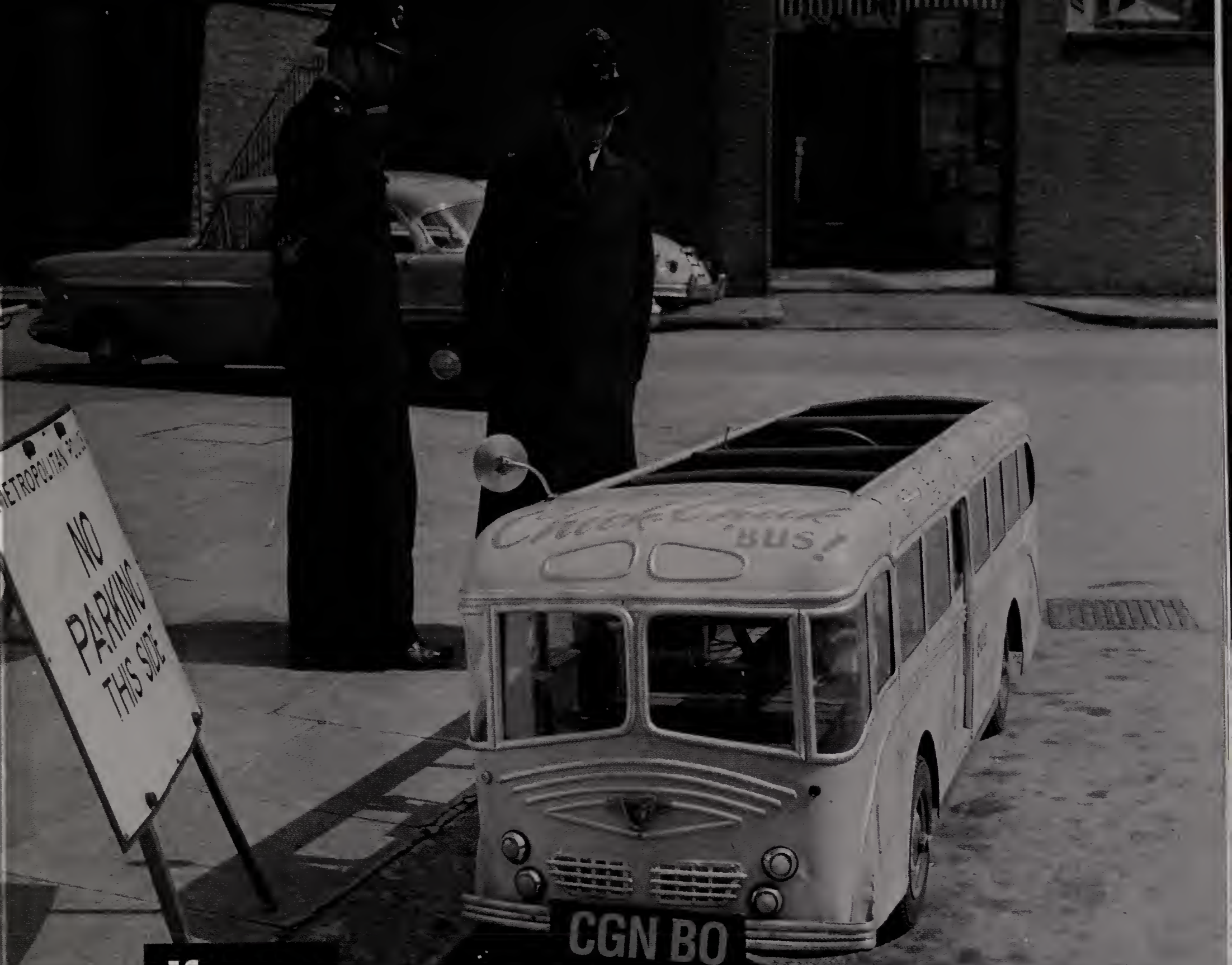


Sound editors create hundreds of audio files for every new movie.

(he recently finished *Men in Black 2*) involves 15 days of recording with "foley artists," people who are recorded knocking on a door or walking on gravel and so forth. Hundreds of audio files emerge from that work.

Work processes also contributed to C5's storage problem. Because editors at C5 couldn't share files, they made local copies of everything they worked on. They also made 6GB local copies of the movies in order to sync sound and picture. At any one time, C5 is working on four major motion pictures plus several documentaries and indie films, each having up to six editors. On top of that, directors will often change entire sections of movies during audio postproduction, which means everyone will stop what they're doing, upload their work, wait for the new video file, make a new local copy and then start editing again.

Vendors offered to sell Goldstein a SAN, of course, but they wouldn't sell him what he wanted. If he wanted just an empty rack to put his own hard drives in, they'd tell him he had to buy the



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HOW TO Get In and Out of an Outsourcing Deal

BY TOM FIELD

NO ONE ASKS, "Why outsource?" anymore. Since Kodak signed the first major IT outsourcing contract 12 years ago, even the most skeptical CIOs have come to realize that they can cut costs, improve service levels and gain access to better technology by placing at least some of their IT assets in the hands of a vendor.

But what's the right way to outsource? That's the trick. To master it, one must focus on two fundamental challenges: how to get into a good deal and, just as important, how to get out of a bad one.

HOW TO CUT THE BEST DEAL

Larry Godec, newly appointed CIO of Santa Ana, Calif.-based First American Title Insurance, is weighing a decision to outsource First American's help desk. It's a big decision, and he's taking his time. He's also taking advice from STI, an outside consultant based in League City, Texas. Why hire a vendor to help make a decision about another vendor? Here are three good reasons.

1. When the typical IT shop outsources, it's often a unique experience for it. But outsourcing attorneys and consultants see these deals every day. "They have experience in best practices," Godec says. "They can compare what you're doing to what other people have done—what's succeeded, what's cost-effective and efficient." When Tom Boardman, CTO of San Diego County, outsourced the county's entire IT operation in 1999, he hired Gordon & Glickson, a Chicago-based law firm that specializes in IT outsourcing. "They know what everyone else has agreed to in their contracts," Boardman says. "Even if they

can't reveal those figures, they can keep negotiating until they reach the point where the vendor has been willing to go in the past."

2. CIOs know what their IT organization can and can't do, but typically they don't understand how the rest of the enterprise perceives their department. An outsourcing consultant interviews the users and helps establish an IT baseline—what are the current service levels and response times, and how do internal IT customers feel they are being served? It could be that your own IT organization is already providing efficient service. Dennis McGuire, chairman and CEO of Houston-based Technology Partners International, one of the first and largest outsourcing consultancies, says 30 percent of his clients choose *not* to outsource after this initial baseline analysis. Prior to this analysis, "even relatively good IT organizations only know where 60 to 70 percent of their costs are, and there are often no [established] service levels," McGuire says.

3. Everyone appreciates the importance of a contract in which you spell out the terms of the deal—how long and for how much. But equally critical is the initial RFP circulated to vendors. Here the consultant can combine knowledge of the marketplace with details about your company's needs and emerge with a document that spells out exactly what is to be outsourced and what results are expected. And it's not just the prospective vendor's expectations that are being set; so are the users', who need to know exactly how their life will change. When the state of Connecticut attempted to outsource its IT operations in 1999, officials failed to spell out all of the terms of the deal in the RFP, and the prospective deal died in conflicts over service levels and costs. Boardman learned from this mistake when he negotiated San Diego County's deal. "Success is determined in the RFP," Boardman says. "An outside consultant can really help you determine what it is you're buying and what should go into the RFP. I won't say we couldn't have done it, but they did it a lot more efficiently and effectively."

HOW TO GET OUT OF A BAD DEAL

Vendors like to say that outsourcing deals are like marriages, and John Davis, vice president of purchasing, engineering and information systems at National Steel, agrees. "Fifty percent of them are breaking up," he says.

Davis knows. Since becoming CIO of Mishawaka, Ind.-based National Steel in 1994, he's inked more than \$50 million in outsourcing deals with big-name vendors such as EDS and IBM. Today, Davis outsources everything but IT management—only eight of his 120-member IT staff are full-time National Steel employees. But not all of Davis's outsourcing relationships have been happily ever after. One—a seven-year, \$63 million deal with the former MCI Systemhouse signed in 1995—ended in divorce.



PARKER

OUTSOURCING

When MCI Systemhouse was acquired by EDS in 1999, Davis exercised his contract's change of control termination clause.

"We didn't do good due diligence, and they didn't either," Davis says about the dud deal. "We didn't do a good job telling [MCI] exactly what we needed, and they were never able to perform the services we thought should be performed." It's never an easy decision to call it quits, but in National Steel's case the sting was eased by contractual provisions Davis built in that protected key assets and personnel that could have been lost in a custody battle. The lesson learned? CIOs needn't be slaves to their outsourcing contracts. But the key to freedom: Don't just have an escape clause, have an escape *strategy*.

PLAN FOR THE END FROM THE BEGINNING. All outsourcing deals expire. Knowing this, spell out up front the exact terms for a full or even partial termination (in case you want to bring some functions back in-house but still outsource others). Gordon & Glickson Partner Mark Gordon recommends identifying which IT assets

It's likely the vendor has developed strong relationships with your senior management. Anticipate management pushback if you want to end the deal.

(hardware and software) and key personnel you want back when the deal ends, and what price you will be willing to pay to regain them. And be sure to track these assets and people in case the vendor reassigns them. "Much easier to say than do," Gordon concedes, but worth the effort when the breakup arrives. The alternative, says Davis, is a lose-lose proposition. You know you can walk away from the deal, hurting your vendor, but your vendor knows it can walk away with your best people, wounding you.

BUILD KEY MILESTONES AND PENALTIES INTO THE DEAL. Rather than wait for contract-renewal time to assess the merits of the deal,

build in milestones along the way—key rollout dates, transition targets or service-level goals—and marry them to significant penalties if they're not met. "This way you can arrest problems right

away rather than watch the deal crash and burn," says McGuire. And if the deal really is doomed to failure, you'll know sooner rather than later. Davis argues for including escalation clauses, which require top-management meetings between vendor and customer if milestones are missed consistently. "These are effective because CEOs don't like to have to explain why their companies are failing," Davis says.

RESERVE THE RIGHT TO BRING IN A NEW VENDOR. First, resist the urge to outsource everything to one vendor. Once a single vendor has control of all your assets and personnel, you've lost the ability to disentangle cleanly if the deal falls apart. Plus, the price leverage afforded by having another vendor on the scene is especially powerful during renegotiations.

EXPECT PUSHBACK FROM MANAGEMENT. Breaking up isn't just hard to do, it's expensive, especially when you start adding up the costs of buying back outsourced assets or rehiring personnel. In big deals, it's likely the vendor has developed strong relationships with your senior management. Anticipate management will push back if you want to end an outsourcing deal, and be prepared to present a solid business case to support the decision.

MAKE IT PAINFUL FOR THE VENDOR TO QUIT. There's a bait-and-switch tactic common in outsourcing deals: The vendor puts its A Team on the account during courtship then switches to the B Team (or worse) after the deal is done. To avoid that, and a result-

ant decline in service, CTO Boardman added an interesting wrinkle to his disentanglement clause with the Pennant Alliance, which holds a seven-year, \$644 million contract to run San Diego County's IT operations. If the county terminates all or part of the agreement because of failure to perform, Pennant must pay 20 percent of whatever remains on the contract to the county or to the vendor that takes its place. Were this penalty invoked, Pennant would be in the position of cutting checks to a competitor. "We really want to make it unpleasant for the vendor to walk away," Boardman says.

Incidentally, when National Steel's Davis terminated his contract with MCI Systemhouse/EDS in 1999, he did a new RFP, put it out to bid and ended up signing a new five-year deal...with EDS. The difference: This deal set the *right* expectations and terms, and EDS assigned a whole new management team to it. "We've learned to do [outsourcing] right," Davis says. **CIO**

Executive Editor Tom Field has written extensively on outsourcing. Share your views on managing outsourcing arrangements with him at tfield@cio.com.

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For more information on how to outsource, see CIO's **OUTSOURCING RESEARCH CENTER** at www.cio.com/outsourcing.

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OUTSOURCING

HOW TO Adapt Your Offshore Strategy to an Insecure World

BY TOM FIELD

IN THE BEST OF TIMES, offshore outsourcing is a tough sell to business executives wary of foreign entanglements. But today, amidst economic recession and terrorist warfare, there is heightened anxiety

Islamic extremists in Pakistan burning an American flag.

about the notion of handing off critical IT projects to vendors in such remote locales as India, Pakistan and the Philippines. At some companies, senior business executives have banned all foreign travel, and a few cautious CIOs have backed away from prospective offshore deals because of tightened budgets or perceived security risks. In response, the offshore vendors—mainly India's, which are the biggest players in the marketplace—have launched aggressive marketing campaigns, featuring happy U.S. customers giving testimonials that are aimed at easing people's concerns about offshore security.

Mind you, there's no evidence that companies with existing offshore ties are trying to sever them. High quality and low cost have always been the dual attraction of offshore outsourcing. According to a recent Forrester Research report, offshore customers save an average of 25 percent on IT projects sent overseas, where skilled labor is plentiful and cheap, and industry analysts believe that that value proposition will continue to outweigh security concerns as IT budgets tighten in 2002. Since Sept. 11, Cambridge, Mass.-based Forrester Analyst Christine Overby, author of the recent offshore study, says she's revisited 10 of the original companies she surveyed, and nine of them plan to continue with minimal or no change to their offshore strategy. "The one 'wait-and-see' was a user I would classify as on-the-fence—even before Sept. 11," Overby says.

Even so, the offshore market has had a tough year. Prior to the



terrorist attacks, the U.S. economic downturn had resulted in slowed growth for many of the offshore vendors, some of which cut their staffs, rates or both to stay competitive. Marty McCaffrey, cofounder of Global Outsourcing, a Salinas, Calif.-based offshore consultancy, estimates that the Indian offshore industry, which had been enjoying 50 percent annual growth, will likely dip to 20 percent to 30 percent in 2001. And since Sept. 11, there has been a palpable buzz of uncertainty about the security of offshore marketplaces. Executives with little or no global experience are particularly leery of foreign deals; one vendor reports a prospective customer backing out of initial talks because some of the programming work was going to be subcontracted to Pakistan. And even some business associates of offshore veterans are a little jittery. At one prominent media company with plenty of offshore experience, a senior vice president responded to Sept. 11 by canceling all international travel for employees in 2002. The CIO doesn't expect that order to stand, and even if it does, the company's existing offshore deals shouldn't be affected (they don't require foreign travel).

Despite the occasional panic, CIOs with significant global experience say offshore outsourcing remains viable. "I don't see any new attitudes toward offshore at my company nor in the industry either," says Kim Ross, CIO of Dunedin, Fla.-based Nielsen Media Research (the TV ratings company), which has outsourced software development to Cognizant Technology Services in India since 1995.

PHOTO BY AP WORLDWIDE



When Nielsen first undertook offshore development, Ross had to address senior management's questions about doing important work in an unstable political environment, and he had to develop contingency plans in case of business disruption. "But you have to worry about [contingency plans] no matter where you outsource—even in the United States," Ross says.

Thus, the key to offshore success today is not just ensuring that your people and systems are protected but making certain that senior business executives (and shareholders) understand what protective measures you've taken to secure your assets in an insecure world. Here are some tips from offshore outsourcing veterans.

MINIMIZE FOREIGN TRAVEL. In six years of offshore outsourcing, Nielsen CIO Ross has traveled to India just once—and that was after

the first year of working with Cognizant. The truth is, once you get past negotiations (where it really does pay to visit a vendor's site and ensure you aren't walking into a Kathie Lee sweatshop situation), offshore deals require very little travel. These contracts are managed quite successfully by the customer's home-based project managers and the vendor's account team, which frequently is split between the offshore location and the customer's own headquarters. There is value in having in-house staff interact closely with the offshore team, but many companies are now finding videoconferencing to be a whole lot more cost-efficient than foreign travel.

KEEP THE CODE HERE. Software piracy has always been a concern when doing business globally. But most offshore projects are no longer all done at the vendor's remote site, on the vendor's own systems (which may be corrupt or insecure). Typically, offshore vendors work via the Internet off their clients' systems, applications and data, which all are housed on the customer's own site or secure network. In Nielsen's case, roughly one-fourth of new software development is sent overseas. "But they're working on software

that's duplicated or resides here," Ross says. "The real assets are code and business knowledge, and in our case they stay here."

HAVE A BACKUP PLAN. Aside from international travel, the biggest concern many people have about offshore outsourcing is, What happens if communications or electricity is cut off? And in India, where electricity and telephone service fail daily, that is a legitimate issue. But it's also been dealt with. According to McCaffrey, the top 20 Indian vendors all have redundant communications systems (including satellite and fiber-optic capabilities), and many of them also have personnel deployed in the United States, as well as overseas, also working on redundant systems. That is true at Nielsen, where roughly one-fourth of Cognizant's account team is based in Florida, augmenting Ross's own 400-member IT staff. "If we somehow lost capacity in India, it would disrupt some projects, but no aspect would cause a mission-critical failure," Ross says. At LexisNexis, the Ohio-based news and information service provider, Senior International Liaison William Lewis's backup plan includes multiple offshore sites. He started sending IT projects offshore to India in the mid-'90s but in 2000 decided to place some work elsewhere in the world. "I just don't want everything in one basket," Lewis says. Today, Lewis has IT work offshore in India and the Philippines, and he's on the verge of signing an onshore deal with an American Indian-owned vendor.

USE A THIRD-PARTY BROKER. For companies that simply don't want to take on the risk of dealing directly with an offshore vendor, here's a new option: Do it through a third party. Outsource the work to U.S.-based vendors that will subcontract at least part of the job to their own long-established offshore partners. IBM Global Services, PricewaterhouseCoopers and Providio are among the

Some customers are backing out of deals with Pakistani outsourcers.

companies that are starting to broker offshore work for domestic clients, assuming not just the responsibility for delivering results but responsibility for contract negotiation and project management. It costs more to use these companies than it does to deal directly with offshore vendors, but Forrester's Overby points out that the third-party brokers also minimize complexity, lock in the right expertise and keep labor costs in check. By 2005, Overby predicts, more than half of the U.S. companies that go offshore will do so indirectly, just as a means of minimizing risk and headaches. **CIO**

Share your stories about offshore outsourcing with Executive Editor Tom Field at tfield@cio.com.

HOW TO Take Control of Your Website

BY ELANA VARON

I**N THE EARLY DAYS OF THE WEB,** The Goodyear Tire & Rubber Co.'s domestic and global business units rushed to stake their claim in online territory, launching about 200 websites, each with its own infrastructure and applications. Most companies did the same. But now, the Internet land rush is over, and companies are civilizing their online frontiers by consolidating. Today, after a year and a half's worth of work, 75 percent of Goodyear's business units are using a single platform.

Goodyear's Web consolidation project is part of a corporate strategy to run IT globally, rather than locally. Eric Berg, CIO and vice president of e-commerce, wanted the company to be able to roll out new e-commerce applications worldwide without having to customize them for multiple platforms. That consolidation has cut Goodyear's cost of operating and upgrading its websites in half. Meanwhile, James Fessel, an equity analyst with PNC Advisors in Philadelphia, notes that the consumer market targeted by those websites—individuals or corporate customers who buy new tires for their vehicles—is Goodyear's most profitable group of customers. And efficient e-commerce can only improve the productivity of its dealers.

Taming the online infrastructure of a global company doesn't require a CIO to come out with guns blazing. Instead, it demands diplomacy, a good grasp of the core business and a rigorous focus on value. Here are some tips from Berg on how to get the job done.

1. SELL THE CONCEPT COMPANYWIDE. With support from Chairman and CEO Sam Gibara, Berg convened a global e-business team of IT and marketing representatives from the company's nine strategic business units. Everyone already knew the Web was a strategic sales and marketing tool. But when the e-business team told top managers how much they were spending on redundant hardware and software, it was clear they could save money by sharing an infrastructure.

Sponsorship from the top was critical to rally employees around the goal. "There were many people that were skeptical about whether or not [the project] could be successful," Berg says. "We were trying to do something complicated on a global basis that cost some money."

Rui Moreira, Goodyear's regional e-business manager for Latin America, says high-level support sent the message that executives expected results. To further make the point, most of the funding for the consolidation came from corporate, in contrast to other IT projects, for which the business units shoulder the investment.

2. PUT BUSINESS NEEDS FIRST. It's one thing to agree on broad principles. Company managers, especially the marketing and product managers who oversee Goodyear's seven tire brands, had to be sure they could live with the details. Mainly, they wanted assurance that adopting common technology wouldn't mean they lost control over the content of their sites too, says Andy Traicoff, the North American tire unit's general marketing manager. Web content that sells tires in Boston doesn't do the trick in Buenos Aires. In the United States, the Akron, Ohio-based manufacturer markets the safety and reliability of its products, but in Argentina, it emphasizes performance and technological innovation.

Goodyear CIO Eric Berg envisioned a consolidated global Web strategy.

So the e-business team put together its own sales pitch. A live demonstration, in the form of a revamped corporate webpage, helped clinch the deal. Managers from 26 countries saw how they could save time and money by deploying a product selector application that was developed and maintained centrally, and use standard content management software to customize it with information about the products they sold locally.

The team also presented its case in terms that would be meaningful to the marketers. Digital Day, the Fairlawn, Ohio-based vendor that designed the site's template, helped the Goodyear team make the sale by backing up its recommendations with research Goodyear had given the vendor about how consumers buy tires.

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E-COMMERCE “When [Digital Day] said, ‘Organize it this way,’ there was a built-in level of confidence. They weren’t just this group of Web heads,” says Traicoff.

There are some holdouts, says Nat Leonard, Goodyear’s director of global e-commerce. A manager in one country, which Leonard didn’t name, insists his logo should stay where it is on his site, and Leonard is letting him have his way. He thinks that once

Goodyear CIO Eric Berg says that if he had to do the project over again, he would dig even more deeply for support from employees in the trenches.

the resistors see that their peers are getting good business results from the project, they won’t want to be left out.

3. KEEP EVERYONE INFORMED. The project team kept marketing and product managers—who are in charge of providing content to the sites—informed throughout the development process. Moreira, the regional e-business manager for Latin America, says Web consolidation was a regular topic during monthly conference calls or videoconferences with managers from the nine countries in the region.

Those meetings helped the project team identify opportunities and avert mistakes. Moreira knew they would need more than one template for all the Spanish-speaking countries, since you can say tire five different ways in Spanish. If the site were only for internal use, everyone would learn the same vocabulary, says Moreira. But they couldn’t expect consumers to do the same, so the business unit ended up with templates reflecting local vocabulary for each country.

The regular consultations also led the project team to adjust the launch schedule for two business units to coincide with new marketing campaigns. The U.S. site—the first major deployment of the new infrastructure—launched the same day in September as a new advertising campaign. And the changeover for Latin American sites was timed to coincide with a November product launch.

4. MEASURE ROI, AND REPORT RESULTS. Within a few weeks, Leonard expects operational data to show improvements such as higher uptime for servers and lower expenses for content management. The project should pay for itself in a year and has already shown “the value of economies of scale,” Berg says. “We were able to shift funding away from back-end infrastructure and licensing agreements and spend more on the applications and the presentation.”

The new infrastructure has demonstrated its worth in other ways. Leonard notes that after the Sept. 11 terrorist attacks, it took about five minutes for the company to post on its U.S. sites a message expressing sorrow about the attacks and explaining Goodyear’s contribution to the rescue and relief effort. “One person in the Web operations group went into our content management system, inserted new content, hit the refresh button, and it was done,” he says. When the sites ran on different servers, they would have had to be updated individually. When it’s time to roll out new e-commerce tools, the same ability to upload an application once and populate multiple sites is expected to save the company money on each deployment.

5. LOOK FOR LESSONS. Every project has its glitches. Berg notes “a few testy moments” when he wasn’t sure whether some of Goodyear’s software vendors would survive the dotcom crash. From now on, says Leonard, the company is giving more weight to the long-term viability of its technology suppliers.

Meanwhile, Berg says that if he had to do the project over again, he would dig even more deeply for support from employees in the trenches—for example, involving product managers directly and enlisting managers at all levels to promote the project to their staffs. The lesson—that success is more likely

with support from end users—is hardly new. However, the e-business team needed credibility with senior executives first, says Leonard. “I think it will be easier every time we have another one of these [companywide] projects because senior management will be more comfortable. They’ll know what we’re doing. And we’ll be able to spend even more time with the people on the street.” **CIO**

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How do you manage your e-commerce infrastructure? E-mail Senior Editor Elana Varon at evaron@cio.com.

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HOW TO Run a Microsoft-Free Shop

BY SCOTT BERINATO

DO YOU FIND that you're incapable of stopping upgrades? Do you spend much of your day patching security holes? Do you have a vague sense that you're spending too much money on software? If you answered yes to any of those questions, you may have become overly dependent on Microsoft. Here's a handy 12-step program to cure your condition.

STEP 1 We admitted we were powerless to manage our Microsoft software.

MANY CIOs FEEL they are in a double bind with Microsoft products. The software itself seems always in need of security patches. The Windows 2000 server, for example, currently has 154 files available for download at Microsoft.com, nearly half of which are security updates.

Windows XP makes things

worse. The product's new subscription licensing model has raised the ire of many executives because they feel it forces them into frequent upgrades in order to get their money's worth. But in a recent CIO survey, a majority (65 percent) admitted they weren't considering any alternatives. "A lot of us will just cry foul but then pony up," says one CIO.

STEP 2 We came to believe that a power greater than ourselves could restore our IT department to sanity.

LINUX IS THAT POWER. It is less expensive to acquire. It takes up

less hard disk space and requires less memory to run.

There is elegance in the open-source code license: You can have the source code for free, allowing you to upgrade or patch systems as you like. The only rule is that when you develop something new out of the source code, you must share that code with everyone else. Many developers believe this open-source model makes Linux inherently

more secure than a proprietary operating system.

"We think we'll get blazing performance," says David Larsen, director of IS in Murray City, Utah, who's starting a migration to Linux desktops. "The other thing is, Linux is being taught in schools. It's getting easier to find skills. It's something whose time is coming."

STEP 3 We made a decision to turn our lives over to Linux as we understood Linux.

THIS IS THE HARDEST PART of running a Microsoft-free shop: deciding to do it. Linux has a geek's reputation. At the same time, many executives have a crude interpretation of its value to corporations—"It's free, and therefore it's cheap." Slowly, that mentality is changing, but it's still true that there first must be a wholehearted and willing embrace of Linux as a legitimate

enterprise replacement for Microsoft. This journey usually starts with a tech executive playing around. Maybe it's a Linux firewall on a home machine. Maybe it's a Linux desktop on an old Pentium that was collecting dust. But it starts at the top. A Microsoft-free IT shop cannot exist without the CIO reading up on and understanding the power of the alternatives.

STEP 4 We made a searching and fearless inventory of our network, applications, processes and business rules.

DO THIS, literally. Write down everything. A migration away from Microsoft requires very real proof that the move will

make your business better. But you can't prove your case without a list of what's being replaced and why.

STEP 5 We admitted to ourselves—and to our CEO—the exact nature of our information systems' failings.

VICTIMS OF A HACK or virus have likely already done this as a necessary step in the recovery process. To others, the major failing is this: They are locked into a Microsoft-dominated architecture that feeds them insecure, bloated code. Another failing is the needless code dependencies of Microsoft products.

Perhaps the most expensive failing of CIOs' Microsoft-dominated IT shops is the upgrade cycle. "There's no other compelling reason to upgrade Office except to maintain compatibility with everyone else," says Larry Shutzberg, CIO of packaging maker Rock-Tenn in Atlanta.

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I.T. ARCHITECTURE

STEP 6 We were entirely ready to have Linux remove all these defects.

IF STEP 3 WAS "Decide to do it," then Step 6 is "No, really decide to do it." Psychologically preparing your company to create a Microsoft-free shop will require a complete rethinking of entrenched technology and business biases.

First, you have to plan a

phased approach to taking Microsoft products offline. This occurs application-by-application. Firewalls first. Then mail servers. Then Web servers. Generally, the desktop OS—Microsoft's monopoly—is hardest to eschew, and so it comes last.

STEP 7 We humbly asked Linux to remove Windows, Apache to remove IIS, Evolution to remove Outlook, Netscape 6.1 to remove Internet Explorer and StarOffice to remove Office.

WITH THE GAME PLAN in place, set up a "sandbox" in one corner of the enterprise—a couple of servers and desktops, and some other hardware for networking and firewalls. Here, the various

Linux applications will be brought online, tested, tweaked and prepared for deployment throughout the network.

STEP 8 We made a list of all business units we harmed and became willing to make amends to all.

PREPARE MEMOS that list ways a particular application improves operations—whether it's saving disk space (Red Hat Linux distribution is about 25MB; Windows XP requires 2GB), memory, acquisition costs, or upgrade and maintenance costs. One CIO,

though he thinks it's doubtful he could migrate away from Microsoft, says a major benefit would be the time he'd take back for strategic planning. Right now, he wastes time figuring out how to proceed with nonstrategic products like Office.

STEP 9 We made direct amends to those business units (except when to do so would have gotten us fired).

GIVE THEM all of that freed-up disk space back. Return money saved on licensing (most Linux applications require a capital purchase and support, but little

in the way of ongoing fees). At the film company DreamWorks, Ed Leonard has ported the entire graphics animation department to Linux; *Shrek* was created on a

"renderfarm" (a powerful, refrigerator-size rack of servers) that had 800 processors running Linux. Leonard took the money he saved by not having maintenance contracts and used it to

buy far more inexpensive Linux PCs. He says the money he has saved will allow DreamWorks to replace desktops and the renderfarm every two years instead of every five.

STEP 10 We continued to take inventory of the switch to Linux, and when we muffed it, we promptly admitted our error.

NOW BE BRUTALLY HONEST. If a conversion to Linux doesn't save money or improve the business, admit it in your analysis—and possibly stop the process. You're not doing this as a cru-

sade. In many cases, honestly admitting it was an even swap will win more supporters than trying to fudge benefits that may not be there.

STEP 11 We prayed for knowledge of business goals and the power to carry them out.

NOW YOU CAN put the documentation to work. Show what moving to a Microsoft-free shop can do. Turn all that data into a slick presentation created on StarOffice Impress. Michael Tiemaan, CTO of Linux vendor Red Hat, recently did such a presentation for a customer. The customer had done a high-vol-

ume transaction on a \$2.5 million, 32-processor server using Windows applications. Even then, the transaction took two weeks to finish. Red Hat and the customer put together an alternative: 10 two-processor servers running Linux. All told, it cost \$500,000. The transaction now completes in one day.

STEP 12 Having had a spiritual awakening, we vowed to carry this message to other IT shops and practice Microsoft-free computing in all our affairs.

TIEMAAN arguably is in a position of power on this, but when he receives a document in a "proprietary data format"—that is, .doc, .ppt and so forth—he sends a courteous reply to the person asking her to resend the document in a nonproprietary

format. Most of the time, this is a painless exchange, he says. "To run a Microsoft-free shop, you simply must be disciplined about it," Tiemaan says. "When I came here, I ditched my Windows system, and I haven't looked back." **CIO**

Share your attempts to run a Microsoft-free shop with Senior Writer Scott Berinato. E-mail him at sberinato@cio.com.



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HOW TO Behave Yourself in Public

BY LETITIA BALDRIGE
WITH LAFE LOW

YOU MAY KNOW YOUR BUSINESS when it comes to technology, but are you sure you know what's appropriate dress for the office these days? Whether it's proper to encourage your dinner guests to order a first course? What to do when you've forgotten the name of someone whose name you should certainly not have forgotten?

Social situations can be fraught with peril, and even people with the finest manners can use a refresher from time to time. Let's begin with your look.

DRESS

One simply can't ignore one's dress and appearance. Contrary to popular opinion, the business dress code is becoming increasingly strict as the economy continues to struggle. CIOs have to look crisp and professional.

One must always dress according to one's age, position and body type. For a woman, her figure should determine what she wears. If your arms, for example, are not all they should be, don't wear sleeveless dresses. Women beyond cheerleader age should not wear skirts above the knee. Midriffs should not be exposed no matter how good one's figure. Modesty is always in fashion.

Men have it a bit easier because they're just choosing between different suits and ties. Still, men should look around at their peers and clients, and then try to dress better than everyone else. If you're uncertain of your own taste, pick someone in your company who is a really sharp dresser. Tell him, "Let me take you to lunch at a nice restaurant, then come with me to Saks and help me pick out some clothes." Clothing is expensive. It's best to have just a few high-quality pieces.

For casual days, there are certain acceptable ways to dress down. For men, a blue blazer with an open-necked blue, white or pink oxford cloth shirt and gray or tan gabardine slacks is a very nice casual look. A red or blue tie should be close by so that one can put it on quickly in case an important client or the CEO drops by. Those young gentlemen in the dotcom business wearing stained khakis and polo shirts with corporate logos are so 1999.

Some people believe they can wear their running shoes to the office. They are wrong. Wear a nice pair of Loafers and save the running shoes for running. Keep your sandals in the closet until the weekend as well. Feet are not attractive, and wearing sandals with socks is for tourists, not businesspeople.

DINING

When it's time for dinner at a restaurant with colleagues and clients, think ahead about who will sit next to whom. Sadly, that's rarely done in business today. The host of the dinner should tell everyone where to sit. That relieves the guests of having to make awkward decisions. And when told to sit, everyone should do just that. Anyone who gets up and goes table-hopping shows tremendous rudeness to others.

Before ordering, the host should instruct the waiter to take everyone's order first and his last. If the host urges everyone to take a first course by saying something like, "The shrimp cocktail is fabu-

Letitia Baldrige, CEO of Letitia Baldrige Enterprises, says manners are just a matter of "being aware of what's going on around you."



lous,” that gives the guests the signal that it’s appropriate to do so. If no one is having a first course except one person, that one person should withdraw her order. The same applies to dessert. It’s rude and awkward and leaves the others around the table twiddling their thumbs while one person eats his solitary crème brûlée. And when choosing an entrée, don’t instantly order the Lobster Thermidor. Aim for the median on the price scale.

Of course, there are many other points to keep in mind during a dinner. Use your napkin regularly so that you don’t smear grease all over your water glass. If you spill a bit of water on the table, mop it up. If you spill a bit of wine on a dining companion, it’s proper to offer to pay the dry-cleaning bill. If you feel something stuck in your teeth, excuse yourself and go to the rest room. I once saw a woman pull out a nail file to dislodge something from her teeth. I had to wonder what forest she had crawled out from.

Don’t take too big a bite, but if you do, just keep chewing and get it down. Of course, that’s the moment when someone will turn and ask you a question. In that event, it’s that person’s responsibility to apologize and redirect the question elsewhere.

Gentlemen do not remove their jackets while dining, unless the host does so first. And don’t offer or ask to share entrées. It destroys the grace of the meal. People should enjoy one another’s company, enjoy their own food and enjoy the fact that everyone has beautiful manners.

“AND YOU ARE...?”

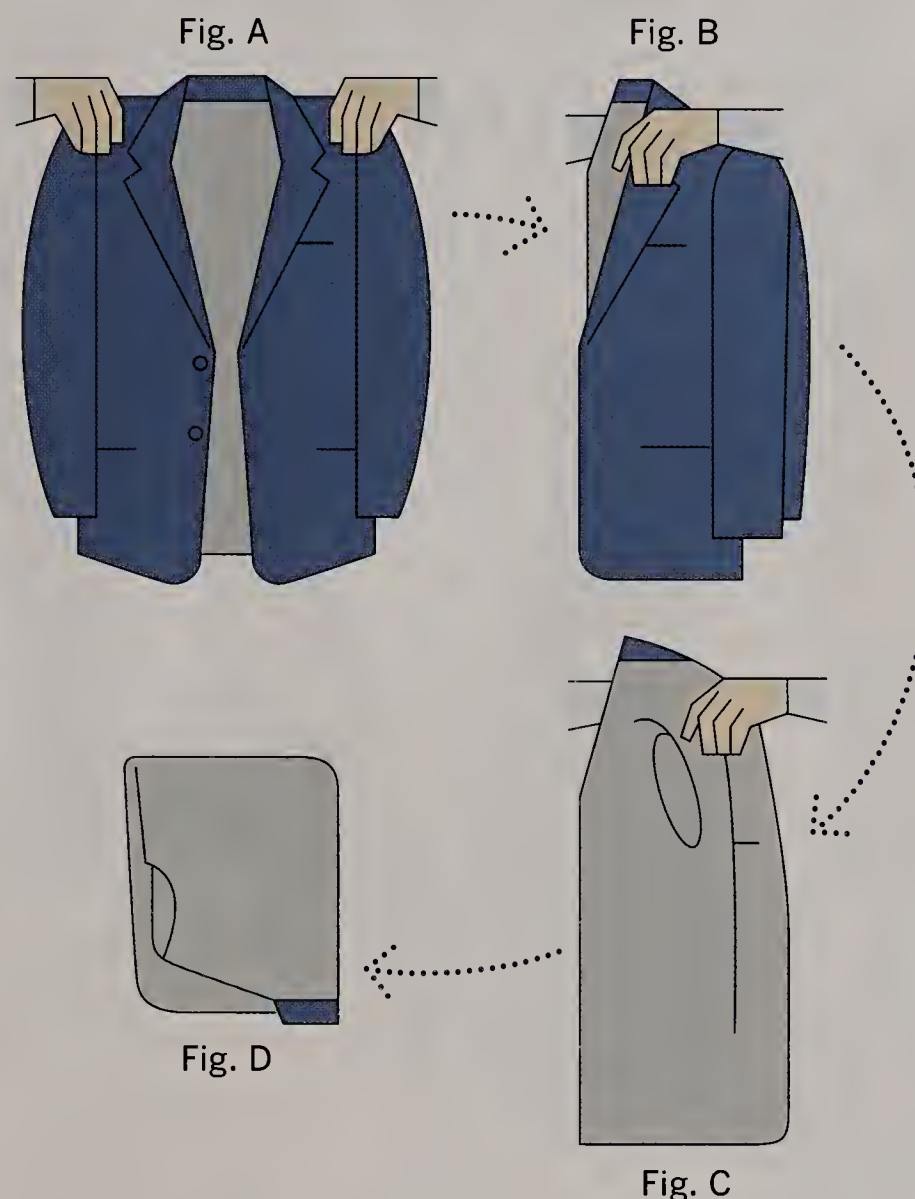
We’ve all been in situations where we’ve forgotten someone’s name we really ought to know. The next time it happens, just admit it. Say something like, “I am so forgetful these days, I can’t remember my mother’s name. Help me out.” Often the other person will laugh and offer his name gladly.

If you have any indication that someone is struggling with your name, it’s up to you to offer to help. I once introduced a CEO and his wife to several couples, but I used his ex-wife’s first name. They were so appalled that they didn’t stop me. The first one was my fault, but he was to blame for the second, third and fourth misintroductions.

Don’t be the person who cuts others out of a group conversation, ignores a new member of the group or speaks over someone. Don’t be remembered as the one who arrives too late or stays too late. Acting with proper manners is really just a question of being aware of what is going on around you and reacting appropriately. **CIO**

Letitia Baldrige served as the chief of staff and social secretary for Jacqueline Kennedy during the Kennedy administration. She is currently the president and CEO of Letitia Baldrige Enterprises, an executive education company based in Washington, D.C. If you have etiquette stories to share, e-mail Features Editor Lafe Low at lhow@cio.com.

How to Avoid Wrinkling Your Jacket While Traveling



SIT ON YOUR JACKET, and it will get wrinkled. Even if you tuck the tails under your butt (which you should always do), stuffing yourself into a coach seat on a plane will leave you looking like a crumpled newspaper. You should take your jacket off while traveling. If you can’t hang it up, then fold it and put it away.

Here’s the right way to do it: First, empty the pockets of all pens, keys and change. Turn the jacket around so that the buttons are facing away from you (Fig. A). Hold the jacket in your left hand just above the left shoulder lapel; reach around and slide your right hand into the

right shoulder opening (Fig. B). Pull the right shoulder around toward you, and slip it into the left shoulder, forcing the left shoulder inside out (Fig. C). (This is the same process by which you may have been taught to fold a fitted sheet.)

The jacket’s lining is now on the outside, and the jacket is half its usual width. Make sure the lapels, pocket flaps and sleeves are flat, and fold the jacket in half, top to bottom (Fig. D).

You can now stow your jacket, confident that when you unfurl it and put it on, you will look presentable, if not pristine.

—David Rosenbaum

HOW TO Work a Crowd

BY DIANE DARLING

NOT LONG AGO, I found myself on a 45-foot sailboat cruising the Maine coast. Shivering on deck in a cold rain, I struck up a conversation with a man who turned out to be a senior executive for a technology company. Over the next hour, our conversation took many twists and turns, and a few weeks later, I felt comfortable enough to ask him to be an adviser for a new Web company I was starting up.

Such ideal circumstances, of course, are few and far between, but you can make the most of almost any networking opportunity if you know how. A business dinner, the hospitality suite at a conference, a quarterly board meeting—all are suitable occasions for making the right connections. But it takes patience, time and humor to convert the chance encounter into a mutually beneficial relationship. So slow down and take charge of the moment. And remember, when networking catapults from a casual chat to a hard sell, your quarry may lose interest fast.

Here then are a few specific suggestions for planting the seeds that could grow into oaks.

1 PLAN AND PRACTICE

As a CIO, you frequently get invited to trade shows, conferences and other invitation-only events that offer great networking opportunities. Executives from your own company might be there as well as CIOs, CEOs and CFOs of other organizations. Dan Bricklin, CTO and founder of Trellox, a Concord, Mass.-based Web platform and managed hosting service provider, says he always practices ahead of time what he is going to say. (Think of it as tak-

ing the stage to rehearse a few lines.) He also researches the dress code, tries to find out who else is coming and nails down the directions. For Bricklin, there's nothing worse than being late for an important event. (Hint: If it's black tie, men should try on their tux when the invite arrives, not the night of the event—just in case the tux no longer fits.)

Another thing to do in advance is think of three topics that are specific to the event. Talk about the city, great food, climate and so on. It may feel fake at first. The reality is you are finding common interests. Everyone likes to do business with people who have similar interests. The more commonalities you can reveal, the more likely you'll be to get a next meeting.

2 WHILE THERE, MAKE THE MOST OF YOUR TIME

Contrary to popular belief, networking is not an opportunity for free food. If you are truly starved, go to the food table, get a plate and hide in the corner for a minute. Then get a drink—carry it in your left hand so that the right is free for shaking hands—and start to meet people. (Breakfast hint: Skip the onion bagels.)

Handshakes can quickly become an arm-wrestling contest or, in some cases, a sweat exchange. Grip so that your palms are together, shake twice and let go. If you are someone who gets nervous, pop in the rest room and wash your hands. The water will be refreshing and calming.

When you're talking to people, look them in the eye. Look long enough so that you'll remember the color of their eyes. The color doesn't matter, the fact you made good eye contact does. (Gents, the change in your pocket—please don't play with it, it's very distracting!) As I said before, don't confuse networking with shoptalk. That new ERP system you'd like the company to buy will take months to install. Similarly, it's going to take time to get the CEO and other key executives on board. But they'll be much more

Networking is not an opportunity for free food. If you are truly starved, get a plate and hide in the corner for a minute.

inclined to listen to your sales pitch if they are comfortable with you as a human being.

And finally, for all of you who are in love with PalmPilots, be careful. I was recently beamed someone's contact info while at an event and the next day realized I had his user name and password to all his personal files on Backup.com.



CAREER

3 TALK THREE TO EIGHT MINUTES WITH EACH PERSON, TOPS

There are computer bugs, ladybugs, VW bugs, and then there are people who quickly become your best friend. You need to know how to extricate yourself from these chatterbugs, but it isn't easy.

From my experience, here are a few lines that *don't* work.

"I'm off to the rest room." The next thing you know so are they.

"I'm going to the bar." Now they'll want to have you buy them a drink.

Keep in mind that most people actually want to move on as well, but they don't know what to say. So sometimes I say, "This is a networking event, so I'll let you move along." Or, "It's been a

You need to know how to extricate yourself from chatterbugs. It isn't easy.

pleasure speaking to you" will do. One tactic for really persistent people is saying "I've got to run. I just saw someone walk in that I owe a phone call to." Another tactic is to include the person in a conversation with others, then after a few minutes excuse yourself. For those who really won't move on, a simple clean swift action is needed. At the same time you thank them, reach out to shake their hand and keep moving away. If you stop, you're stuck.

4 WRITE A THANK YOU NOTE

This is a *huge* chance to separate yourself from the crowd and be memorable. When possible and appropriate, send a quick note of thanks after the event. There are some great cards with slots for your business card and space for a few lines.

Yes, all this takes time, but if you view networking, as I do, as a shortcut to getting things done, then there's really no choice. Is there? **CIO**

Diane Darling, founder and president of Boston-based Effective Networking, gives workshops and seminars on networking. She can be reached at diane@effectivenetworking.com.

HOW TO BE A HIP CIO:
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LEADERSHIP

Get the Credit You Deserve

BY SARAH D. SCALET

IMAGINE YOU'RE sitting at your desk, squinting at your computer screen, brow furrowed. In walks one of your peers—say, the vice president of marketing.

"He asks you, 'What are you working on?'" says Robert Rubin, retired senior vice president and CIO of the Philadelphia-based Elf Atochem North America, a global chemical company. "And you say, 'I'm trying to figure out how to get more credit for what I do.'"

Wrong answer, ego boy. Don't pass go.

CIOs are good at taking the blame when things go wrong. That would be OK if they got credit when things went right, but often they don't. Either other executives are so far removed from IT that they don't know what's going on, or business leaders don't know when a success has been achieved (or even what

should be considered a success) because the CIO is fearful of appearing boastful.

"Certain people go into certain fields that are a fit for their personalities," says Mitchell Marks, a San Francisco-based organizational psychologist. "I don't want to generalize, but technology attracts more of an introverted type of person. For a lot of CIOs, just getting the job done is what turns them on, and they don't need all the ballyhoo and pats on the back."

But if people don't know what's being achieved in IT, they'll think nothing is. IS will be undervalued, budgets will be cut, and you might even be let go. So without further ado, we offer five tried-and-true tips on how to get the credit you and your staff deserve, discreetly and without alienating the rest of the company.

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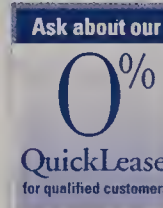
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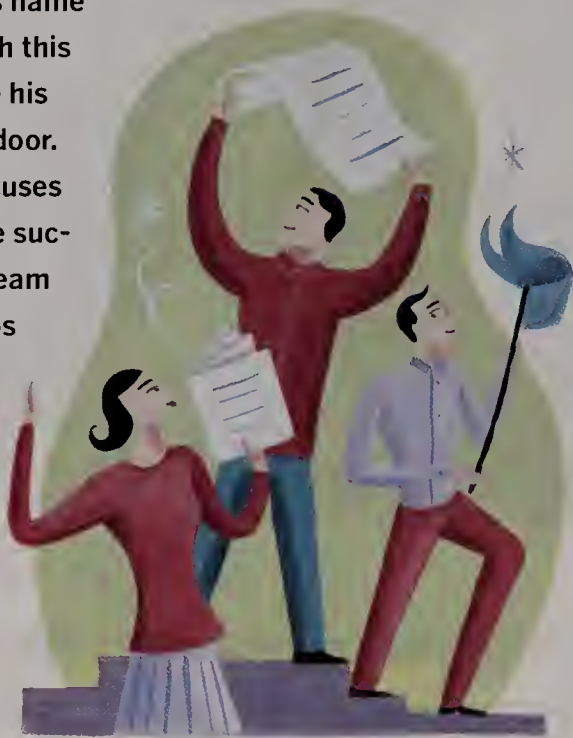
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LEADERSHIP

1. TALK UP YOUR TEAM

Getting credit is a sensitive issue. "I'd love to be able to talk openly and publicly about our successes, but certain parts of the business would view that as me fanning my own career," says the CIO of a large hospitality company who believes that having his name associated with this story would be his ticket out the door. Instead, he focuses on flagging the successes of his team through memos and employee newsletters. Maybe other departments will pay attention, maybe they won't. At least he's trying.



2. GIVE CREDIT TO OTHERS... PUBLICLY

And speaking of giving credit where credit is due, you should be lobbying other executives to recognize the work of your employees. Marks says this is an especially useful tactic for CIOs who shy from the spotlight. If the IS team has had a big win, try to get the individual members noticed.

Nominate staffers for companywide awards. Ask the CEO to acknowledge a successful project team at the next town hall meeting. The bonus? "It looks good because you're the leader," Marks says.



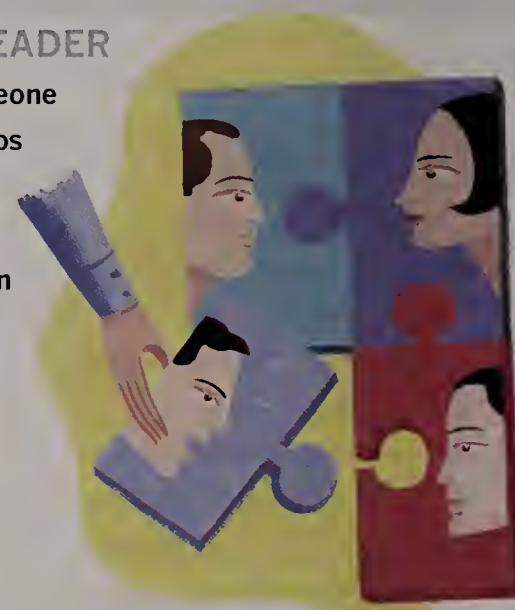
3. KEEP EVERYONE INFORMED... CONSTANTLY

In his 15 years at Elf Atochem, Rubin learned to make sure business leaders knew what he was working on. "You don't say 'We did this,'" Rubin says. "You say 'Here's what we're doing.'" As a result, he remembers more than one occasion when someone at a meeting was trying to hog credit for a completed, successful project. But because Rubin had been so communicative about what IS had been doing all along, somebody at the meeting interrupted to ask, "Didn't IS work on this?"



4. FIND A CHEERLEADER

Of course, having someone else volunteer the kudos before you have to ask for it is ideal. Companies often call Marks in to troll for feedback on how IS is performing. Sometimes, the simple act of asking questions sparks a new appreciation for IS. Marks recalls one user telling him, "Come to think about it, I never thanked the CIO for that."



5. DO A GOOD JOB

What all this boils down to, though, is doing a good job. "The bottom line is that if you really want to be successful, the way to achieve it is by making *others* look good," says Rubin.

Have buy-in from a senior businessperson on every project, and make that person glad to have worked with you. "People work best when you give credit away. I don't mean fawning over them. People like to work with people who make them look good." **CIO**



Senior Writer and Security Editor Sarah D. Scalet wrote this story, but many people helped her. She can be reached at sscalet@cio.com.



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HOW TO Get and Keep a Life

BY PATRICIA WALLINGTON

LIKE A LIGHTNING BOLT from the sky, the tragic events of Sept. 11 have reminded us that each moment with our loved ones is precious. Our friends and family are our anchors in what sometimes seems like a sea of insanity. Now more than ever, many of us are rethinking what is important to us and how we want to spend our time.

Even before the terrorist attacks, a recent survey found that American workers feel as stressed on their days off as they do while on the job. And a large part of that is because their jobs spill into their nonwork hours. For example, 43 percent said they spend some of their free time either being on call or dealing with work issues. Though we gripe about not having enough leisure time, until now it hasn't been important enough for us to *do something about it*. So, get a life! Let's do something about making time for our families, our loved ones, ourselves, our hobbies and all the things that can enrich our lives.

Get is the operative word in that phrase. No one will give you a life. *You* have to take control and do the things that create the space for family and interests other than work. One of my early mentors, a sailing aficionado, encouraged me to think of life as made up of five ports and suggested that I try to sail into all of them in order to achieve some balance in my life. The five ports are family, self, work, community and friends. I rarely found the time for all five ports, but when I really worked at it I could consistently do better than one or two. Here's how to begin.

MAKE WORK FIT WITHIN EIGHT HOURS (OK, MAYBE 10 HOURS)

I know this seems impossible in this world of instant and con-

stant communication, but it can be done. It just takes commitment and a few tricks.

TRY OUT THE THEORY OF GOOD ENOUGH. This advice came to me from a university professor who helped me understand how in our quest for perfectionism we become our own worst enemy. Most tasks can be done to the 90 percent level and meet or exceed the requirements. Time spent finding the last bit of information has only marginal value, and the cost of time is high. Pick a point in your work where you stop to ask the question, *Is this good enough?* It may not work every time, but it can go a long way toward making perfectionism more manageable.

OUTLAW INTERRUPTIONS. Set boundaries and don't let others abuse them. I liked to start work early to clear voice mail and e-mail, and get ready for the day's round of meetings. Once everyone knew my habits they started calling and "dropping by" during those early hours. As a result my day got longer and longer, until I learned to shut my door and turn the phone off during that time. Stay focused on what you are doing, and avoid the distractions of an interruptive environment.

REFUSE HOMEWORK. Do you find yourself sitting on your briefcase in a desperate attempt to get it to close? I did. At first I thought I needed a bigger briefcase. Then I realized the overstuffed contents all had a little tag attached saying, "Please read this 200-page document over the weekend, and give me your comments." Most of these homework assignments come from your staff. So make your staff work a little harder. Ask for an executive summary for all documents over three pages. Read it in the block of time you set aside—during office hours—just for this kind of activity. Believe me, it works.

ANNOUNCE YOUR DEPARTURE. Let everyone know. Say, "I am leaving at 6 p.m.," and then do it. In one of my many attempts at balance, I went back to playing the piano. Every Monday evening I had a lesson at 7 p.m. Amazingly, everyone cooperated to get me out the door in time for those lessons. Peter Nero I am not, but playing the piano is a unique combination of relaxation and concentration. Just right for me.

LET GO. Have someone else do it. Delegate it. It's almost too prosaic to include this, but it is an essential element of getting free time. This is especially true if you ever want to have a vacation free of office interference. One year I rotated key tasks through the organization, telling my employees I wanted things to function flawlessly if I was gone for a month. I didn't even have a month's vacation at the time, but this team could have handled everything if I left for a while. When I went away for a week or more, I put someone in charge and told him to make decisions, instead of holding them

until I got back. In return, I made a vow that I would live with his decisions and not revoke them when I came back.

Enjoy your work. You are good at your job and really enjoy your work. Good! Work is not the problem. It becomes a problem only when you let it control you instead of you controlling it.

LIVING IN THE MOMENT

Now that we have wrested some free time from our busy lives, let's see how we can maximize its use.

Use the organizing skills you developed on the job. Plan something around the parts of your life—time with your family, a volunteer activity, lunch or a ball game with friends. Spend some of that money you work so hard to earn. Buy a vacation home to make it easier for you to get away. Hire a personal trainer, and work on becoming physically fit. Combine multiple objectives. One of my colleagues takes his teenage son to the gym with him. That gives them one-on-one time in a shared activity.

Live in the moment. Allow yourself the luxury of giving 100 percent of your attention to the activity at hand. Close the virtual office

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CARVING OUT TIME at
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when you get home. Force the distractions from your mind. It takes a lot of practice, but the e-mails, voice mails and I-Mode pages will still be there when you get back to them. Count on it! Your children

will relish those few hours before bedtime. The concert will be so much more enjoyable without the competing dialogue in your head. Your perspective will be much clearer when you are refreshed. Really, how important can one person be that they must be available instantly, all the time?

Build a support system. When life feels like a series of crises resembling a script for *ER* or some other TV drama, having a support network helps. It can range from the close friend or therapist to whom you can safely vent, to alternative care for the children when you or they are ill. Having something or someone to fall back on, even if you never have a need to use it, has a calming effect.

KEEP IT GOING

Getting a life and keeping it are two different things. Have you ever dieted and lost 10 to 30 pounds? Losing that weight was hard; keeping it off was even harder. The magic is in changing the way you eat. Well, the same is true here. You will have sustained success only if you change the way you live. Prioritize what is important to you. Get a "personal time trainer," someone who will keep the calendar from getting cluttered with the trivial. For me, having uninterrupted weekends for my family was a goal that always seemed out of reach no matter how many hours I worked during

the week. Then I hired an executive assistant and charged her with seeing that that goal, among others, was met. Not only did I get to leave the office without a briefcase for the weekend, she made sure I was out of there by 5 p.m. on Fridays.

Couldn't have done it by myself, but once established, it remained a habit long after the assistant had gone on to bigger and better jobs.

You will regress. It takes time to make a new life, to have new routines become habit. It is only a failure when you give up. Have the discipline to restart the "Get a Life" journey, whether two days or two months have passed. Effective leaders have balance, poise and a sense of calm even in the midst of chaos. Building a multidimensional life will help you achieve the balance necessary to face a future more uncertain and anxiety-ridden than we ever envisioned. **CIO**

What tricks have you deployed to get a life? Let Senior Editor Alison Bass know at abass@cio.com. Patricia Wallington, now president of CIO Associates in Sarasota, Fla., was corporate vice president and CIO at Xerox before retiring in 1999.



Former CIO

Patricia Wallington takes a minute to enjoy the Florida sun near her home.

HOW TO Kill an Enterprise Project

BY BEN WORTHEN

THERE ARE FEW THINGS AS DRAINING on an organization—in dollars and morale—as a project that has lived beyond its time. Loathe to admit defeat, companies rarely pull the plug on an ERP or CRM installation gone bad. In the meantime, any number of resources get sucked down the metaphorical drain—including, if you're not careful, your job. As the CIO, you're the head doctor on the ward. It's up to you to determine which projects you can bandage and which you should put out of their misery.

If the thought of killing an expensive project makes your heart palpitate, there are steps you can take to minimize the discomfort. But before you can deep-six those doomed projects, you have to know how to identify them.

YOUR PROJECT IS IN TROUBLE WHEN YOU EXPERIENCE ONE OR MORE OF THE FOLLOWING WARNING SIGNS. One—your gut is rumbling. “Pay attention to what your noncognitive self is telling you,” says Eileen Strider, former CIO for insurance provider Universal Underwriter in Overland Park, Kan. Strider knows of what she speaks. In 1997, after one year and \$1 million worth of patchwork solutions, she had to kill a policy administration and rating system project. “My gut knew way before my head knew,” she says. “Then my head had to figure out what really was going on.” Too often, CIOs rely on their intellect to see them through

tough times. It's instinctive to throw resources at problems as they pop up in the hopes that this time it will finally fix everything, but that's part of the seduction. “It's not like you aren't paying attention,” says Strider. “It's just hard to see clearly when you're in the middle of it.”

Two—your project manager starts smoking cigarettes. While the warning signs probably aren't as obvious as bad breath and tar-stained fingers, you can tell a lot about the state of your project by changes in your employees' behavior. Johanna Rothman, a consultant for the Cutter Consortium in Arlington, Mass., who recently authored a report on evaluating projects, says you should constantly gauge your employees' enthusiasm. “Are they excited about the project?” she asks. “If they are excited they will tell you stuff about it. Once they stop talking, you are in trouble.” A good way to gauge behavior is to go to the company cafeteria and join in—or just listen to—the lunchtime banter.

Three—the rumor mill is churning overtime. And it is probably right. If you hear that finance or HR or some other department is complaining about the parts of the project that relate to them, there probably is something to it.

Four—every day you learn something new about the software. Discoveries are normal at the beginning of a project, says Marie Benesh, who turned her experience as the project manager on one of the world's first integrated ERP installations at Corning in 1995 into a career as a professional ERP project evaluator. It's a bad sign if the problems keep coming after the first three months, particularly if you have to start reallocating people. “[In the beginning] I hear consistently that we didn't realize we were going to have to do ABC,” says Benesh. “But if it happens [after the first

You'll know your project is in trouble when your project manager starts smoking.

few months], then you are probably changing the scope of the project midway through. And then you will never make the end.”

IF SOME OR ALL OF THE WARNING SIGNS ARE THERE, IT IS TIME FOR ACTION. HERE'S WHAT YOU CAN DO. Take responsibility for everything that has gone wrong. That is probably the hardest thing

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PROJECT MANAGEMENT

to do since you are essentially putting your head on the chopping block, but it is also the only way to get your employees to tell you what really happened to your project. Strider stood up at a meeting of company executives and announced that the project failed and that it was entirely her fault, and then told her employees the same thing. Once you take responsibility, she says, your employees will tell you all their fears and failures. Otherwise they'll be too scared of getting blamed to tell you what you need to know.

Do an analysis of the project to date. Don't hide it from your employees; they know things aren't right and will be just as relieved as you to find out why. That said, it is important to do it quickly—a review of a \$50 million ERP project Benesh conducted for a Big 10 university took only two weeks. Talk to your vendor and contractors, but don't let them stay onsite. Find someone who isn't affiliated with the project (it could be someone from another department, it could be a consultant—just not you) to interview everyone who is.

If you can, kill it on a Wednesday. This way, says Rothman, your employees have the rest of the week to wrap up loose ends and salvage what they can, and then can come back to work the next week for a fresh start. "Don't wind it down because people won't wind down," says Rothman. "If I get three weeks to wind down I start thinking maybe I can finish this." Make the necessary layoffs and personnel changes right away and give everyone else something new to do immediately. If there isn't a project to move on to, have them do research.

After you pull the plug, resist the temptation to sue your vendor. Unless you can find an example of gross negligence, it

After you pull the plug, resist the temptation to sue your vendor.

is probably just a waste of money. As every CIO knows, vendors write contracts that make themselves immune to liability. "It might be their fault," says Strider, "but it takes two to tango." Benesh says that the best bet is "to spill your guts to the vendor." Most will go out of their way to avoid negative publicity, including providing experienced specialists to help if and when you start again.

Update your résumé. If you follow our advice, you should make out all right. But it can't hurt to have a backup plan just in case. **CIO**

Need more advice before you kill that project? Contact Staff Writer Ben Worthen at bworthen@cio.com.

EXIT STRATEGY

HOW TO Know When It's Time to Leave

BY TOM FIELD

FROM THE BEGINNING, Fred V.* saw signs of the end. He'd just accepted a high-profile CIO job at a big-name food services company, and he was excited about the opportunity to develop a global infrastructure and manage electronic relationships with suppliers, stores and customers. But he also knew this big company had a history of acting small. IT was treated like a second-class citizen, and business managers ruled their own technology fiefdoms. There were no IT standards or shared strategy. The company had burned through two CIOs in three years.

But the potential outweighed the risk, and in his first six months Fred saw nothing but success. He introduced new processes and systems that improved the bottom line and earned high fives from the business heads. Then he began pressing for IT standards and outsourcing, topics nobody wanted to discuss. Suddenly the honeymoon ended. The business heads circled their wagons and shut Fred out of key meetings and budget discussions. By the end of his first and only year at the helm, he saw clearly that it was time to get out before he was thrown out. He walked into the CEO's office and negotiated a severance package, and today he's an independent consultant.

It's a tricky thing, knowing when it's time to leave. You have to be able to read the signs, whether they're written on the board-

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Read more on this topic
at **CIO EXECUTIVE
RESEARCH CENTER** at
www.cio.com/executive.

*Fred V.'s name has been changed to protect his severance package.

today's
business
thought:

what's the
best use
of your company's
time and money?

hint:
it isn't
managing
IT infrastructure.



You have a business to run. And building and operating communications infrastructure probably isn't your core competency. So why devote your precious resources trying to reinvent the data networks, scalability, security and performance WorldCom is known for across the globe? After all, communications is *our* core business.

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EXIT STRATEGY

room wall or hidden in your heart.

For Charles Popper, former CIO of Whitehouse Station, N.J.-based pharmaceutical giant Merck & Co., the telltale signs came after seven years on the job, when he started to feel a little stale at work and was paying more than passing attention to outside opportunities. "People were coming to me casually to seek my advice on startups," he says. "When some of these ideas sounded more fun than what I was doing [at Merck], that's when I realized: It was time." Today, Popper is vice chairman and chief technologist at Orama Partners, a New York City-based investment bank, where he helps startups land venture capital funding. "I'm still trying to get the best business value out of technology," Popper says. "That's part of the fun."

HERE'S HOW YOU'LL KNOW THAT IT'S TIME TO GO. You can't get no satisfaction. When you don't have the impact on the business that you'd hoped for (or had been promised), or IT just isn't getting a strategic role in the company, then it's time to move on. "I came in with a vision of what I thought I could do if IT were elevated to a strategic business role. It turned out that [vision] just wasn't interesting to them," Fred says.

The times, they are a changin'. Has there been a merger or acquisition, and suddenly you're not invited to key meetings about the transition? According to Rich Brennen, global practice leader of the CIO practice at executive recruiter Spencer Stuart in Chicago, today's most common cause for CIOs moving on is a sudden change of leadership at the top—a new boss. "New CEOs come in, and they have a perception of the CIO," Brennen says. "Usually it's 'We think we can do better.'"

Strike three, you're out! CIOs are allowed their fair share of mistakes. So don't sweat it if you blew your ERP budget, suffered a major network outage, or underestimated the scope and cost of integration after that last merger. Unless, of course, all three bombs blow up in succession. In business, as well as in baseball, three strikes and yer out!

Keep in mind that self-awareness is the key to getting out before

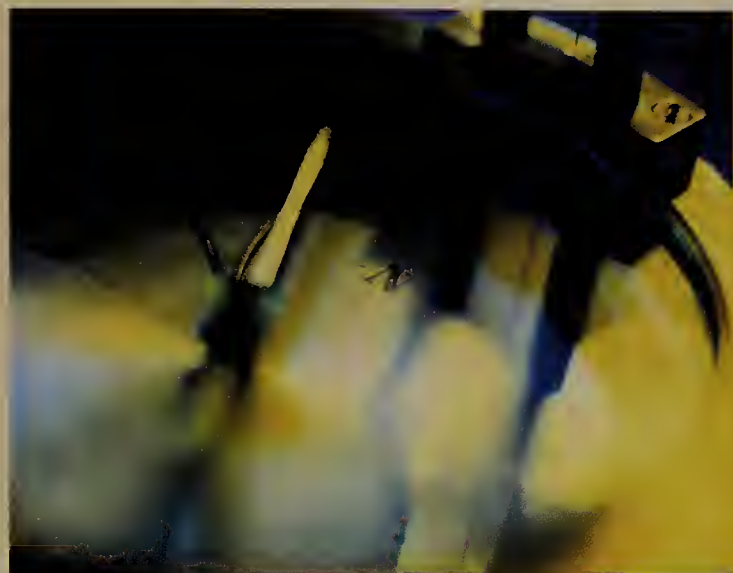
you're pushed. Know your strengths and weaknesses and talk with colleagues to get a sense of how you're perceived in the company. "If you're not adept enough socially to see what's happening [in the company], then the time to leave could approach faster rather than slower," warns Popper. **CIO**

Send your thoughts on how to exit gracefully to Executive Editor Tom Field at tfield@cio.com.



PHOTO BY TONY STONE

HOW TO DEMONSTRATE THE VALUE OF I.T. TO THE BUSINESS:
SHUT DOWN ALL SYSTEMS AND RUN LIKE HELL.



The events of 2001 have proven that America's business and IT organizations are both adaptive and strong — *but where do we go from here?*

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Robert Shiller, Economist and author of *Irrational Exuberance*

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■ **IT BUDGETS** Learn the tools and techniques successful IT executives use to set, sell and manage budgets. A panel of CIOs, led by Martha Heller, Director, CIO's Best Practice Exchange

■ **LEGAL LIABILITY** Know where you and your company are vulnerable — and what you can do about it.
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PLUS A special update on security, the latest CIO Tech Poll results on IT spending, building and managing a flexible supply chain, the CIO/CFO relationship, and the best networking opportunities around!



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SUNDAY, APRIL 14

8:00 am – 1:30 pm

Golf Tournament

3:00 am – 5:00 pm

Registration

6:00 pm – 8:00 pm

Welcome Reception

The perfect time to meet your peers, *CIO* editors, Corporate Hosts and special guests.

8:00 pm – 10:00 pm

Hospitality

MONDAY, APRIL 15

7:30 am – 8:30 am

Breakfast & Registration

8:30 am – 8:45 am

Welcome & KnowPulseSM Poll

ABBIE LUNDBERG

Editor in Chief, *CIO* Magazine

8:45 am – 9:30 am

Opening Keynote: Is There Such a Thing as Too Much Security?



JONATHAN ZITTRAIN,

Conference Moderator

Executive Director, *The Berkman Center for Internet & Society*, Harvard Law School

The push toward a more secure Internet has been revitalized by recent events. Just what forms will that security take? Implications reach far beyond combating viruses and denial of service attacks. Almost every way we use the

Internet, especially for commerce, stands to evolve, as “security” and “trust” become the touchstones of Internet development.

9:30 am – 10:15 am

CIO & CFO:

Working Together for Better Results

The CIO and the CFO are the two executives whose domains stretch to every corner of a company — as IT is woven through every aspect of the organization, and bottom-line concerns exert greater influence on all initiatives. Regardless of where they sit on the organization chart, the two will always have a unique relationship — one inevitably colored with tension. A CIO and CFO look at the nature of the roles, and discuss how to strike the right balance between an appropriate amount of tension and respect — and why doing so will produce better corporate results.

10:15 am – 11:00 am

Supply Chains in a Post-September 11 World

From manufacturers to retailers, the need for visibility and flexibility in supply chains rose in importance after the September 11th attacks. From tighter security at border crossings to concerns about transporting chemicals, ensuing delays affect everything from cars to ice cream cakes. What was a job for logistics experts is now a boardroom-level issue. IT plays a vital role as com-

panies look for the ability to change course quickly.

11:00 am – 11:30 am

Break

11:30 am – 12:15 pm

Business Briefings

Our Corporate Hosts present case studies, technology updates, and management practices.

12:15 pm – 1:45 pm

Working Lunch: The Economy — A Special Report

ROBERT J. SHILLER

Professor of Economics,
Yale University

In his best-selling book, *Irrational Exuberance*, Shiller documented the combination of factors that drove stock markets to dizzying heights, and forecasted the dangers associated with that phenomenon. The dot.com bubble burst, the economy quickly slowed—and the events of September 11th continue to take a heavy toll psychologically and economically. Where do we go from here?



2:00 pm – 2:45 pm

Business Briefings

2:45 pm – 3:30 pm

Business Briefings

3:45 pm – 4:45 pm

CIO Panel:

Rethinking IT and Business Strategies

Moderator: RICHARD
W. SWANBORG, JR.



President and Founder, ICEX

How do you keep your IT strategy relevant and visible while your business undergoes significant change? How do you improve the speed for setting an IT strategy and getting buy-in from all your stakeholders? Is there a better way to fund and quickly deploy a new strategic initiative while minimizing the risk of failure? Top CIOs share their views and experiences.

4:45 pm – 5:45 pm

Legal Liability: When You and Your Company Can Be Sued

BRUCE P. KELLER

Partner, Debevoise & Plimpton

Do you know what your company's legal exposure is when customer information is compromised by the unauthorized use of your systems? Do you know what your systems are really hosting? A number of corporations recently discovered that their systems functioned as “super nodes” for the FastTrack file-swapping network. Keller examines the impact and related issues of organizational liability, privacy and intellectual property use in the marketplace.



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ng. It all adds up to the best ROI for you.

6:00 pm – 7:00 pm

Reception

The best place to get connected, exchange more good ideas and get practical advice.

TUESDAY, APRIL 16

7:30 am – 8:30 am

Breakfast & Informal Discussion Roundtables

Chat with *CIO* Magazine editors and your peers over your morning coffee.

8:30 am – 8:45 am

Corporate IT Spending Trends — Where Are They Headed?

GARY BEACH

Group Publisher, CXO Media Inc. *CIO* Magazine, in partnership with Ed Yardeni, chief investment strategist of Deutsche Banc Alex.Brown, surveys a panel of senior executives on current and future IT spending, as well

as other issues. Beach presents an overview of the latest results and emerging trends from the *CIO Tech Poll*.

8:45 am – 9:45 am

Security: A Special Session

This session is produced in cooperation with the National Critical Infrastructure Assurance Office (CIAO) of the US Department of Commerce.

9:45 am – 10:45 am

Best Practice Exchange: Setting, Selling and Managing the IT Budget

Moderator: MARTHA HELLER

Director, Best Practice Exchange, *CIO* Magazine

CIOs who want to see their projects completed and their staff intact understand the importance of smart budget practices. This panel of CIOs, drawn from the *CIO*

Best Practice Exchange, a private online network of senior IT executives, discusses the tools and techniques each uses to set, sell, and manage their IT budgets.

10:45 am – 11:15 am

Break

11:15 am – 12:00 pm

Business Briefings

12:00 pm – 12:45 pm

Business Briefings

1:00 pm – 2:30 pm

Networking Lunch

2:45 pm – 3:45 pm

Leadership and Conscious Communicating

DR. RICK BRINKMAN

Author, *Dealing With People You Can't Stand...*



As CIOs gain more prominence within their organizations, they have more opportunities to interact with other senior executives, corporate officers and directors. Dr. Rick helps us understand the cause/ effect of communications and get the results we want.

3:45 pm – 4:45 pm

Closing Keynote

4:45 pm – 5:15 pm

Summary/Conclusion

JONATHAN ZITTRAIN

6:00 pm – 7:00 pm

Keynote Reception

7:00 pm – 9:00 pm

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4ROBD2

HOTEL ACCOMMODATIONS We urge you to make your reservations early by calling the hotel between 8am-5pm at 305 865-7511 and identifying yourself as part of the CIO conference to receive the conference rate. CIO will make hotel reservations for government/military participants only. Be sure to guarantee your room with a credit card, as all unreserved or unguaranteed rooms will be released on March 15, 2002. Hotel reservations, cancellations and charges are your responsibility. If a CIO conference Enrollment Form is not received within 48 hours of making your hotel reservation, your room will be released from the CIO room block.

ENROLLMENT FEES All enrollment fees must be paid in advance of the meeting. Fee includes conference sessions, business briefings, Corporate Host displays, conference materials and scheduled meals, receptions and entertainment. Transportation, hotel and recreation are your responsibility. Please note that submission of this enrollment form to CIO obligates the attendee/sender for the enrollment fee.

CANCELLATION All cancellations or substitutions must be made in writing. You may cancel your conference or companion enrollment up to March 15, 2002 without penalty. A \$350 administration fee will be imposed for cancellations between March 16-March 29, 2002. No refund or credit will be given for cancellations after March 29, 2002 or for no shows. You may send a substitute in your place. CIO reserves the right to decline enrollment to any registrant.

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INNOVATION and PRODUCTS in the VANGUARD

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What's New for 2002?

Eight hot technologies most likely to burn a hole in your pocket in the next year BY CHRISTOPHER LINDQUIST

Edited by Christopher Lindquist. Send your thoughts and ideas for future columns to et@cio.com.

AS ONE YEAR ENDS, a new one begins. And by the time you've finished singing "Auld Lang Syne," another dozen vendors will be lined up at your door, looking to lure your company onto the next technology wave. But budgets for new

tools will be tighter than ever, so it will only pay to play with winners.

To that end, we've compiled a list of technologies we think have a shot at making it big in 2002. The current economic climate makes

Top techs for 2002...Standards revisited...Time to get secure

the crystal ball even cloudier than normal, of course, but these apps seem headed for the big time sooner rather than later.

Security

It's an axiom of IT: Network and system security are never going to get less important. But increasingly frequent attacks by hackers, viruses and Trojans, combined with the world's sharpened interest in safety and security, will make 2002 a banner year for security providers of all types. Sept. 11 gave companies an excuse to start talking more earnestly about security, says Chris Byrnes, vice president of security programs for Meta Group, an analyst company in Stamford, Conn. In some cases, he says, members of the board of directors are walking up to CIOs and asking for details of their security and recovery plans.

Fortunately for those CIOs, they'll have plenty of options, including new intrusion detection and network scanning tools, security services, functional (if not yet manageable) biometric tools and more.

Electronic Collaboration

By the time you read this, hopefully the airline business will have picked up significantly since the Sept. 11 hijackings.

But even the optimists aren't predicting a return to the good old days of air travel. A shrinking economy coupled with decreased convenience and new trepidation will continue to hamper business travel for some time. As a result, videoconferencing and online collaboration are in line for serious boosts.

Speech recognition, storage, voice over IP, peer-to-peer apps and (because of Sept. 11) security and videoconferencing tools will be among the hot technologies of 2002.

A study on Sept. 19 by the National Business Travel Association showed that 88 percent of companies planned to increase use of videoconferencing. Web collaboration services such as WebEx were already seeing their usage grow as the economy sank, and there's no sign that trend will change anytime soon. Videoconferencing options that provide decent quality at low cost are expanding (see "Don't Hang Up," Oct. 1, 2001). People still need to meet. But the handshake isn't going to be as critical anymore.

Peer-to-Peer

This may be the biggest long shot on our list. Peer-to-peer tools (which directly connect client systems instead of relying on servers) were possibly the most overplayed new technology of the past couple years, with proponents claiming it would reshape not only computing but

society (for example, that hue and cry of "information wants to be free" and "I don't want to pay \$15.95 for a CD anymore"). Now Napster has been whipped into submission by the courts, and several other consumer-oriented peer services have hit hard times. But the business side of the market may be just getting under way as IT managers find niches for tools that keep employees connected to each other no matter where they are.

Beverly, Mass.-based Groove Networks' collaboration products have been called "firmly grounded in reality" by Gartner. Competitors have added business process (Consilient) and document management (NextPage) features to the free-flowing collaborative peer-to-peer mix. Heck, how many people do you know who use a basic instant messaging tool for business as well as personal purposes? That said, the ROI will tell the tale with these products. The technology is new enough that some IT departments will be wary. But they'll come around—eventually.

Storage

Storage may well be the most important yawner in the IT world. Everybody always needs more of it, and they'd all just

Lukewarm at Best

Web services and 3G connections are iffy prospects for 2002

And, of course, there are a few hyped technologies that still need a bit more time in the oven. Most wireless service providers have slowed 3G deployments for now in favor of less advanced but cheaper-to-implement 2.5G connections. And the bulk of those high-speed offerings won't be available nationwide until late next year at best (with some exceptions: Sprint PCS claims it will have nominal 3G service nationwide by the middle of 2002—we'll see). As for Web services? The tools will still need time to mature, and the developers must decide what products will work best as software-on-a-wire. Don't worry, Web services are coming—Microsoft, Sun and the others will certainly see to that—but 2002 will be a time for sticking toes in the water, not taking the plunge.

—C.L.

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as soon stop thinking about it. But they shouldn't, because technologies introduced in 2001 will start to make an impact in 2002. IP storage products will let companies combine disparate storage centers across their existing IP networks. Infiniband will provide high-speed, simplified connections to storage devices. Storage virtualization software, which combines far-flung storage resources into "virtual pools" of storage, will get more sophisticated. And, as always, disks will continue to get smaller, faster and more dense with every passing month.

Voice Over IP

After some false starts in the consumer market and a slower than expected corporate adoption rate, the technology to send voice over the Internet seems poised to make some moves in 2002. There are a number of reasons, starting with Microsoft's Windows XP operating system,

own Quick Poll in June (www.cio.com/poll/061901.html) showed that IT execs were starting to think positively of voice over IP.

Things won't be completely rosy, of course. Norm Bogen, director for WAN infrastructure and services at Scottsdale, Ariz.-based research company Cahner's Instat, says that with too many overcapitalized players in too small a field, the IP hardware market is ripe for a significant consolidation. Companies buying IP phone systems will continue to face proprietary setups that require a single-vendor commitment. But even those hurdles aren't likely to keep voice over IP hobbled for much longer.

Speech Recognition

By 2003, nearly one-third of call center phone lines will take advantage of speech recognition, says Gartner. Big vendors such as Nortel are producing the gear. Big

Videoconferencing and online collaboration are in line for serious boosts as businesspeople, faced with a shrinking economy and multiplying travel hardships, realize that the handshake isn't a critical component of meetings anymore.

which added support for improved voice handling and should alleviate some of the quality concerns that had handcuffed previous attempts to turn PCs into "unified messaging devices." Also, the big telecom providers are starting to figure out how to sell IP services without cannibalizing their existing accounts. (Late last year, for instance, Qwest became the first big player to announce that it would sell VoIP services.) And the results of our

buyers such as American Airlines, Charles Schwab and UPS are installing it. It may even be built in to your mobile phone. Yes, we're still at least a few years away from chatting with our computers à la 2001: *A Space Odyssey*, but speech recognition is real. And as the technology continues to enter the corporate sphere, IT departments are going to be called on increasingly to integrate voice response systems with company data.

Wireless LANs

Nationwide high-speed wireless networks may not come to fruition in 2002 (see "Lukewarm at Best," Page 118), but wireless 802.11b LANs will be another story. Jack Gold, vice president for mobile and pervasive computing at Meta, says that despite well-publicized security concerns, the sector continues to grow rapidly.

It's all a matter of what you're trying to do—companies shouldn't use the tool for sending critical, proprietary data around, but, Gold says, "for wireless e-mail, what's the risk?" Gold also notes that products based on the even faster 802.11a standard will arrive sooner than some expect, thanks to competitively priced chipsets. It all points to a more locally wireless world in 2002.

XML

XML will continue to be a hot story, though it is unlikely to hit the front pages as much as it has in the past. In some ways, that may be a good thing, as XML makes the transition from topic for debate to forgone conclusion. Nearly every piece of enterprise software released in 2002 will make claims of XML compatibility. Groups will continue to hammer out industrywide standards that will actually go into use. And while Web services may still be in the launch stages next year, big pieces of the services puzzle are built on XML. All this action means that we'll see more and more real products doing real things with XML. In the October 2001 XML.com article "XML You Can Touch," Edd Dumbill stated: "The thrill, as they say, is gone, and waiting for the next spec to drop out of the machine has definitely lost its appeal. An exciting use of XML for me now isn't just a spec, it's a use of XML that will actually result in something, well, useful." And it's quite likely that 2002 may well be the first full year of useful XML. ■

Technology Editor Christopher Lindquist wants to know what you'll be buying in 2002. Tell him via e-mail at clindquist@cio.com.



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REVISIT Standards

Talking the Talk

Standards work, but creating them can be a painful process

BY FRED HAPGOOD

STANDARDS ARE like free trade: They allow enterprises to specialize in what they do best, they lower prices, they inspire new services, and they promote the growth of a more integrated and inclusive culture. Also like free trade, the logic of standards is not instantly obvious. It takes patience to grasp why it is good for companies to stop competing and innovating, give away access to their customers and settle on a single set of unchanging rules.

As a result, the interest in both free trade and standards rises and falls with time. Perhaps by no coincidence, they were in fashion together during the past decade: There was a consensus that free trade (such as NAFTA) and standards (HTML and others) were both good things that ought to be extended whenever possible. We caught this spirit in 1992 with an article ("Getting IT Together," March 1992) that declared that interoperability, coop-

erative computing and integrated information environments—all synonyms for standardization—would define the next era of computing.

And we were right. During the '90s the spread of data and product standards laid the ground on which networking, the Internet and, finally, e-commerce were built. Part of what made that period so fertile was that standards packed a double return when applied to computers. They not only lowered the cost of information exchange—their traditional benefit—but also raised data transfer to a point where computers could recognize the content they were handling and deal with it without human intervention.

The most famous example is probably HTML, but there are many others. One underreported but critical instance is the spread of the Standard for the Exchange of Product Model Data, or STEP, through

security

PREDICTIONS

Staying Secure

ECONOMIC downturn or not, the enterprise security market remains strong—at least for the companies selling security products—according to a recent report by Scottsdale, Ariz.-based Cahners In-Stat Group.

The report, "Enterprise Security: Duct Tape and Burglar Alarms Just Won't Cut It," states that increasingly dispersed corporations (thanks to a deluge of wireless devices, intranets, extranets and telecommuting workers) and ever-smarter hackers will continue to make security a difficult job. As a result, IT managers will always be in need of new, better security tools to keep their systems as protected as possible.

And the future of those tools seems to be in hardware, as security vendors increasingly turn to building security appliances, which offer speed and ease-of-implementation benefits over software solutions. The report claims that hardware-based VPN firewall revenues, for instance, will grow from \$1.16 billion in 2000 to \$2.9 billion in 2005, while sales of software-based VPN firewalls should drop somewhat from current levels during the same period.

For more information about the report, visit www.instat.com.

—Christopher Lindquist



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the manufacturing world. STEP is meant to fix a major headache that comes with the complexity and dense information of the modern production cycle: the constant need to translate data, usually by hand, into the different forms and definitions required by each separate step of the chain—from design through manufacturing and beyond. The National Institute of Standards and Technology estimates the cost of all this effort, measured in delay and errors as well as man-hours, at many tens of billions of dollars.

STEP addresses the problems with a product-representation language that establishes common terms and functions throughout the cycle, from engineering services to machine shops to foundries. Parties can pass designs around this circle as necessary with each value being entered only once (the value of a bolt STEP

of engineering: design and manufacturing. The engineers working in the second stage write the programs that tell the manufacturing machines how to do what the design engineer has ordained. If the design engineer orders a half-inch hole at a given location, the manufacturing engineer calculates exactly what that means in terms of drill head pressure, drilling times, degree of precision, angle of approach and so on. Imagine the enormous savings in time and money if the machines could calculate their settings from the design itself, automatically and interactively. Engineering scientists have been pursuing this goal of point-and-click manufacturing, as it is called, for 20 years or more.

So long as we're dreaming, wouldn't it also be nice if designers had real-time access to running subtotals of the materials' cost and estimated manufacturing times created

and numerous, manufacturing everywhere will become smarter and faster and cheaper. It will be a permanent revolution.

STEP is an example of the kind of success that gave our 1992 article its upbeat tone. If we wrote the same story today, however, that tone would need to be less rosy. Lowering the cost of information exchange does not benefit everyone. It hurts the plans of companies that hoped to sell products at the old prices, for instance. During the past few years many groups have begun to respond to the concerns of traditional vendors by strengthening the relative position of privately owned versus collectively owned intellectual property. Both copyrights and patents have acquired new protections and extensions. And there appears to be a growing tolerance of private ownership of data standards. (Even the W3C, the consortium responsible for developing standards for the Web, announced in August that it was thinking about endorsing proprietary standards.)

The new emphasis on intellectual property has resulted in patent protection being sought for methods that would once have been left in the public domain. And governments are more reluctant to see national strengths given away. "Standards are often built on a collective agreement by the companies involved not to collect royalties on their [intellectual property] positions," says Dave Lindbergh, a consulting engineer for Polycom, a conferencing systems vendor in Milpitas, Calif., and an old hand at the standards game. "A single holdout can wreck the whole process. It's a serious problem."

Like free trade, the benefits of standards are no longer beyond challenge. If we wrote our 1992 article today, we would not be able to assume the same level of consensus we did then. Increasingly, like globalization—the new name for free trade—standardization has to win its battles one at a time. **CIO**

Do you have a topic you'd us to revisit? Send it to et@cio.com.

Lowering the cost of information exchange does not benefit everyone.

identifier, for instance, would allow anybody using STEP to find all the relevant information about a particular bolt in a product). The standard was released in 1994 and is now embedded in most computer-aided design/computer-aided manufacturing (CAD/CAM) products. While not every engineer writes in STEP yet, it is widely adopted in fabrication-intensive industries such as aviation, automotive, shipbuilding and furniture manufacturing.

As we noted before, data standards are not just machine-readable but machine-comprehensible, and this fact soon invited research engineers to raise their sights. Products typically pass through two stages

by a given design change, or if they could simulate operations dynamically to see if moving parts interacted destructively? Achieving any of these ambitions requires building a system in which a CAD program can query specialized databases about a wide range of topics, including materials, machining sequences, prices, physical properties and so on, and incorporate the answers it gets from one database into the queries it sends to others.

STEP permits users to write databases with this high degree of interoperability. The idea naturally follows using the Internet to sell STEP-compliant data to manufacturing enterprises around the globe. (STEP Tools is one of the companies that has embarked on this business model. Its databases were used in a General Dynamics-sponsored demo last August in which tank parts were milled directly—point and click—from a CAD file.) As these databases get more useful

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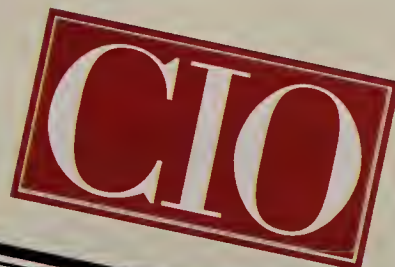
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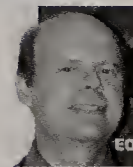
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HOW TO Greet 2002

I Will...

Stop saying "Are you out of your gourd?" and Start saying "Interesting idea. Let me run some numbers and get back to you." **Core** To my **IT** Group.

Take a vacation this year and actually leave the house.

Learn to talk golf.

Next year, learn to play.

Outsource Anything that isn't my **IT** Group. I don't outsource it.

Resist the urge to wallpaper the den with my Stock options. (Cause ya never know.)

Figure out what our **Core** competency is so that we can **Outsource** it. Delete defunct user accounts to prevent hacks from DFES (disgruntled former employees).

Change all my passwords, especially the ones I can't remember.

Make this year's Systemwide upgrade the last systemwide upgrade I ever do - in my current job.

Eschew all **TLAs** (three-letter acronyms).

Refrain from referring to the **CFO** as a bloodless bean counter, especially when presenting budget requests.

Make sure I have **CR** before I try the **M**.

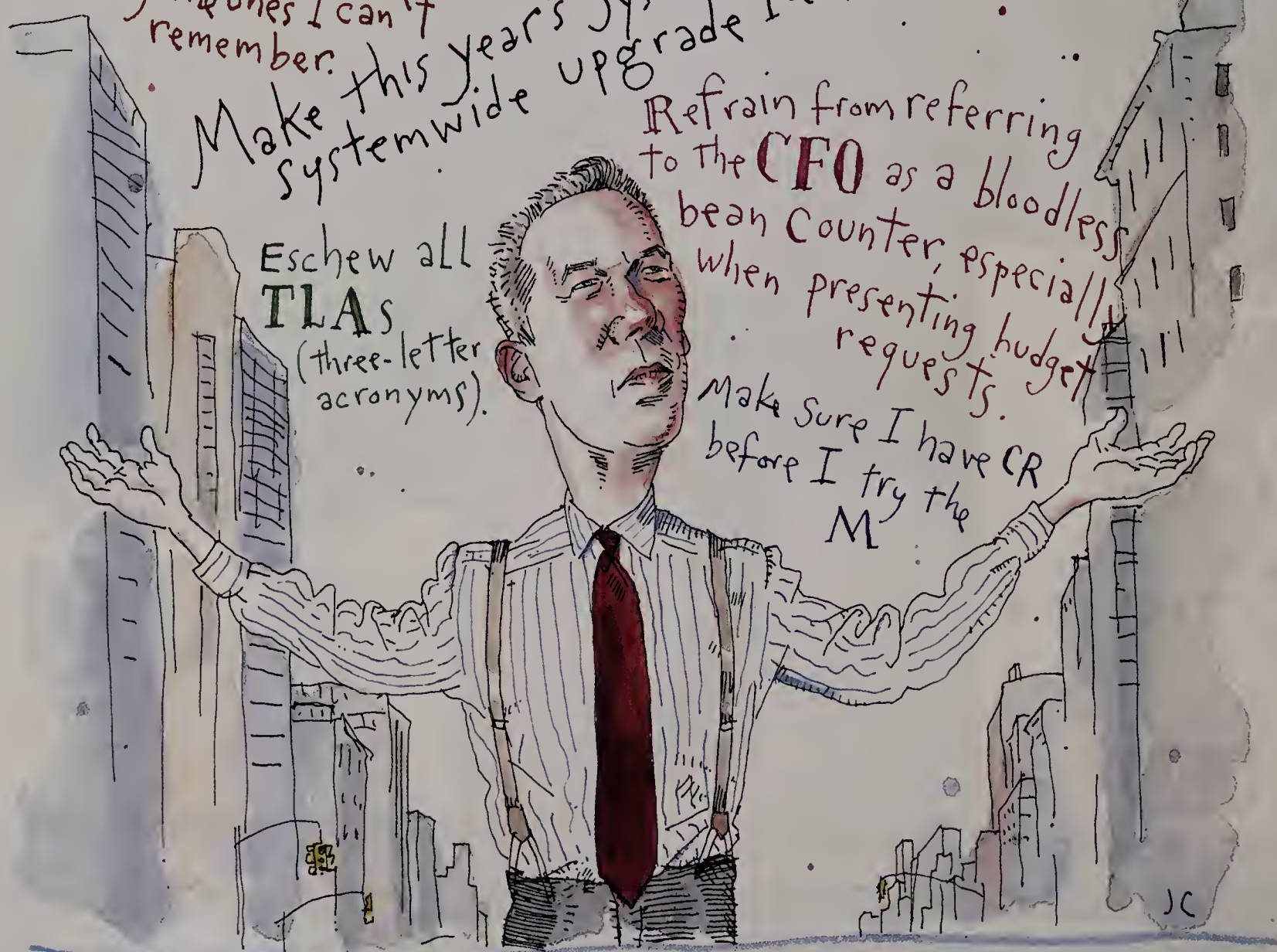


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